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ABSTRACT

This study provides legislators, educators, community organizations, training program specialists, and civil rights groups with data on the position of minorities and women in the work force. Part I considers where the jobs are in terms of designated high growth, high technology, and high loss occupations in the next decade. Chapter One discusses factors influencing employment opportunities in the 1980s. Chapter Two describes the scope of research of Project 2000. Chapter Three highlights Project 2000 data on areas of projected growth with focus on minorities and women. Chapter Four is a national overview of 1980 labor force participation by occupation. Chapter Five analyzes 1980 employment in the five most populous states: California, New York, Texas, Illinois, and Pennsylvania. Each state section includes analyses of minority and female participation in the state's civilian labor force; high growth, high technology, and high loss participation by minorities and women in 1980; and participation of women and minorities in the top five high growth and top three high loss and high tech occupations in 1980. Part II focuses on meeting occupational demands. Chapter Six provides information on training, educational, and other requirements for entry into the Project 2000 high growth and high technology occupations. Descriptions of the 20 high growth and 10 high technology occupations include job responsibilities, salary levels, and sources for additional information. Chapter Seven provides descriptions and addresses of current job training and education programs for employment. Numerous data tables and figures are provided. (YLB)

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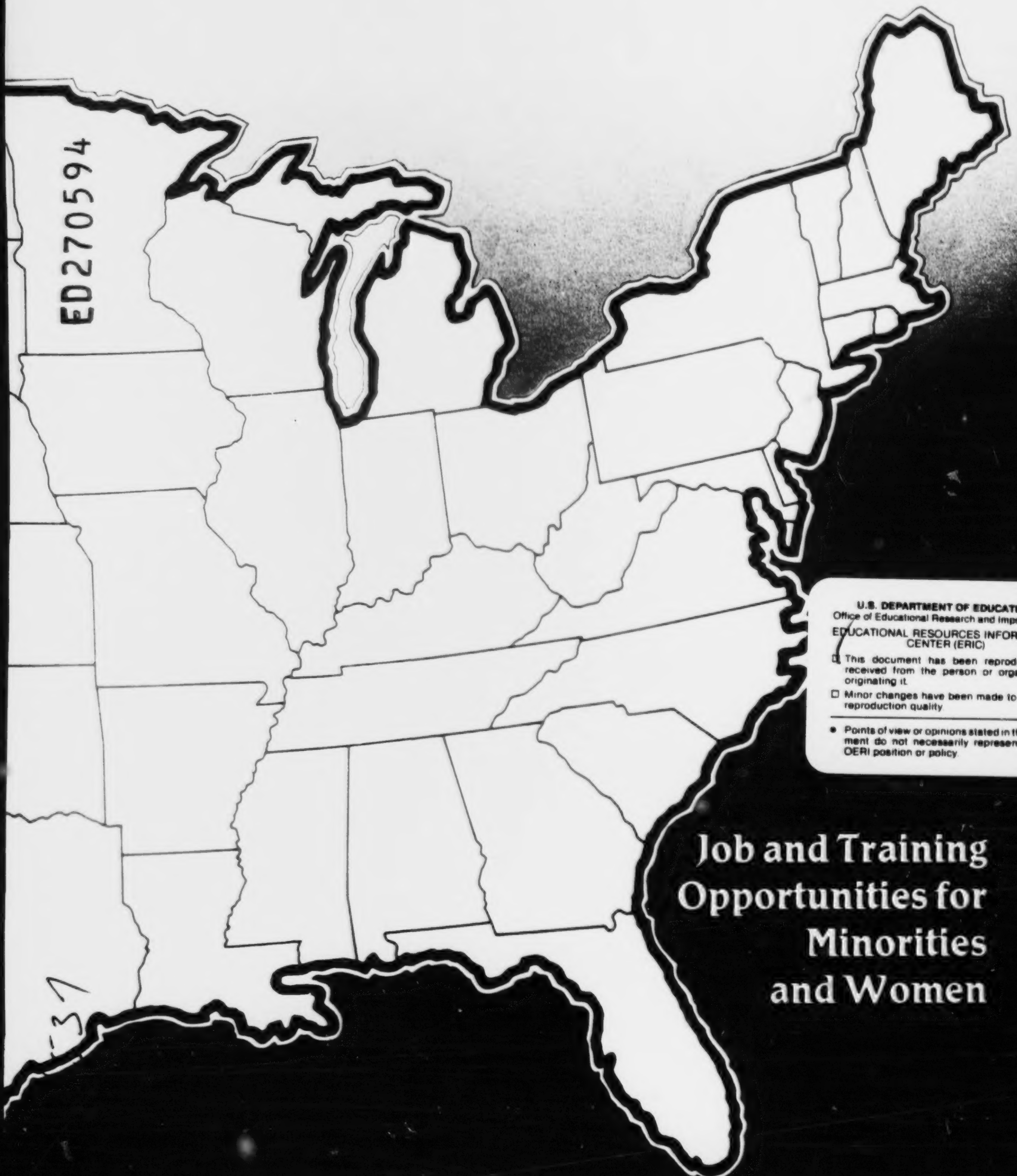

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Job and Training Opportunities for Minorities and Women

Project 2000

Job and Training Opportunities for Minorities and Women

U.S. Equal Employment Opportunity Commission
Washington, D.C. 20507

The Commission

Clarence Thomas
Chairman

Tony E. Gallegos
Commissioner

William A. Webb
Commissioner

Fred W. Alvarez
Commissioner

R. Gaull Silberman
Commissioner

PREFACE

Twenty years ago, Congress accomplished what many thought was impossible—passage of Title VII of the Civil Rights Act of 1964 and the establishment of the Equal Employment Opportunity Commission. Those who forged the consensus which led to this nation's enduring commitment to the principle of equal employment opportunity knew that they were making history. In more than 80 days of debate in the Senate, 20 days of debate in the House Judiciary Committee, and six days of debate on the floor of the House of Representatives, members of Congress carefully spelled out the reasons that prompted the passage of Title VII and the establishment of the Equal Employment Opportunity Commission.

In the Senate, Senator Hubert H. Humphrey explained that the "crux of the problem [facing Congress] is to open employment opportunities for [black Americans] in occupations which have been traditionally closed to them." Other senators reminded Congress that before 1964, many black Americans had been relegated to "unskilled and semi-skilled jobs" and that due to automation, the number of such jobs was declining.[2]

Finally, members of Congress were well aware that unless black Americans were able to secure jobs "which have a future," the civil and political rights conferred by the Declaration of Independence and the Constitution would be meaningless. In response to these concerns, Congress enacted Title VII, which is designed to "assure equality of opportunities and to eliminate those practices and devices which have fostered racially stratified job environments to the disadvantage of minority citizens."[3]

Eight years later, Congress amended Title VII and strengthened the powers of the Equal Employment Opportunity Commission because it found that black Americans were still "concentrated in the lower-paying, less prestigious positions in industry and are largely precluded from advancement to the higher paid, more prestigious positions."[4] Additionally, Congress found that the plight of black Americans was shared by members of other minority groups as well as women. In the case of Hispanics, Congress found that "[b]oth male and female Spanish-speaking workers, as has already been shown to be the case with [black Americans], are also concentrated in the lower-paying occupations."[5] Similarly, in the case of women, Congress found that "despite th[e] large increase in the numbers of women in the work force, women continue to be relegated to low paying positions and are precluded from higher paying executive positions."[6]

Concern for the social and economic problems of black Americans, women, Hispanics and other minority groups enabled this nation to take a new road—a road which leads to equal employment opportunity for all individuals in this nation. Those concerns are as relevant today as they were twenty years ago.

Today, with the advent of the twentieth anniversary of Title VII and the Equal Employment Opportunity Commission, and the approach of the Year 2000, it is fitting that we peer into the future to determine if minorities and women will have jobs "which have a future." Accordingly, in exercise of our power "to make . . . technical studies [which] effectuate the purpose and policies of . . . [T]itle [VII],"[7] the Commission has prepared this study which renews our national commitment to equal employ-

ment opportunity by examining how minorities and women participate in the labor force, and where future job opportunities will occur.

Finally, I wish to acknowledge a few of the many individuals who contributed to the development of this project: James R. Paul, Project Director; Doris Werwie, Ph.D., Deputy Director; Nancy E. Fitch, Ph.D., Historian; Pamela Toutant, Senior Research Analyst; Margorie Scilken-Friedman, Ph.D., Researcher; Chris Doherty, Consultant, U.S. Department of Labor; Jayne G. Benz and James D. Spellman, Project Editors; E. LaVerne Edwards, Project Secretary. Together, they provided the central effort behind this important study.

Clarence Thomas
Chairman
Equal Employment Opportunity Commission

Endnotes to the Preface

1. U.S. Congress, Senate. Senator Humphrey speaking for Title VII, describing the EEOC, 88th Cong., 1st. sess., March 30, 1964. *Congressional Record* vol. 110, p.6548.

2. Ibid., p. 7204.

3. U.S., Supreme Court. *McDonnell Douglas Corp.* v. *Green*, 1973, vol. 411, p.792.

4. U.S., Congress, Senate. *Equal Opportunity Act of 1971*, S. Rept. 92-415, 92d Cong., 1st sess., 1971, p. 5.

5. Ibid., p. 7

6. Ibid.

7. *Title VII*, section 705 [g][5], 42 *U.S. Code*: 2000(e)-4 [g][5].

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INTRODUCTION AND PURPOSE

This country's current employment problems are not solely the result of the most recent recession. High unemployment and layoffs are a growing consequence of long-term changes in our economy. Demographic changes within the civilian work force, especially the greater participation of women, the shift from a manufacturing to a services-based economy, widespread technological advances, the export of goods production, and an increasing need for a highly skilled and well trained work force have all influenced the present job market. These factors will continue to shape job opportunities into the 1990s, presenting new dimensions to the problems of equal employment opportunity in the workplace.

The current variety of change in the economy will substantially affect the composition and requirements of the job market. Many workers will find their jobs to be obsolete or lacking in stability as different skills become necessary to enter new jobs and perform old ones. Equal employment opportunity will depend on access to the training and education needed to qualify for and perform jobs, as well as the continued legal efforts to remove traditional discriminatory barriers to hiring.

The purpose of this study is to provide legislators, educators, community organizers, training program specialists, civil rights groups and others with concrete data on the position of minorities and women in the work force, so that employment, training/retraining and educational strategies can be established to meet the growing needs of workers and employers.

The results of this research will be beneficial to the following groups:

Civil Rights Groups

- √ can utilize national and state projections for High Growth and High Tech occupations to monitor and evaluate employment and training legislation.
- √ can use the information on training and qualifications to focus training projects and target job placement efforts.

Training Organizations (e.g. OIC, SER-Jobs for Progress, Midwest Women's Center)

- √ can use the information on successful training programs as models for establishing new programs.
- √ can use the national and state data to target those occupations where growth has been established and will occur.

Educators (national, state and community)

- √ can use the current data on national and state occupational trends to develop policy strategies for education.
- √ can use the projections, training programs and qualifications to assist students in accurately assessing their career options.

State Departments of Labor/Departments of Education

- ✓ can utilize state-by-state projections to do state and regional job projections for 1990 based upon the Census data provided.
- ✓ can use data for regional economic development planning.

National, State and Local Government

- ✓ can use the current employment trends reported on a national and state-by-state basis in developing policies and evaluating their possible impact, particularly on minorities and women.

Part I

Where the Jobs Are:

Designated High Growth, High Tech, and High Loss Occupations in the Next Decade

1

Factors Influencing Employment Opportunities in the 1980s

Demographic Characteristics

Population shifts throughout the 1980s will affect the composition of the 1990s' work force. Although Census Bureau estimates indicate a U.S. population growth rate increase of only 0.89 percent in the 1980s, aging of the "baby boom" generation will cause an increase in the number of persons between the ages of 25 and 44, and a decrease in the 16 to 24 population.[1] These population shifts will mean greater competition among middle-aged persons for mid-career jobs, and a decline in the number of persons who have traditionally filled most entry-level positions.

According to the Bureau of Labor Statistics, these population shifts are projected to have the following impact on labor force growth: (*see Figure 1.1*)

> The participation of white males between the ages of 16 and 24 is expected to decline from 12 to 18 percent between 1975 and 1990, while the participation for those between 25 and 54 years of age is expected to increase from 33 to 34 percent. White males 55 and over are projected to experience a participation decrease of 3 percent, with most of this decrease being absorbed by minorities and women. The overall anticipated effect will be a 6 percent decrease in the nonminority male work force between 1975 and 1990.
>
> The work force participation rate for nonminority women during this same period is projected to increase 4 percent; with an increase of 1 percent in the 25 to 54 category, and a 2 percent decrease in the 16 to 24 group, and a 1 percent decline in the 55 and over group. Black males and others are expected to experience a total increased participation of 1 percent, with all growth occurring in the 25 to 54 age group. Likewise, black women and others are anticipated to experience their 2 percent participation increase in the middle-age category.

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Figure 1.1

Labor Force Composition, 1975 to 1990

Percentage Distribution by Race, Sex and Age

	Race, Sex and Age	Actual 1975	Projected Low Growth 1990
	Nonminority		
Male		(54%)	(48%)
	16-24	12%	8%
	25-54	33%	34%
	55+	9%	6%
Female		(35%)	(39%)
	16-24	10%	8%
	25-54	20%	27%
	55+	5%	4%
	Black and Other		
Male		(6%)	(7%)
	16-24	1%	1%
	25-54	4%	5%
	55+	1%	1%
Female		(5%)	(7%)
	16-24	1%	1%
	25-54	3%	5%
	55+	1%	1%

Source: Howard N. Fullerton, "The 1990 Labor Force: A First Look" in *Economic Projections to 1990,* ed. U.S. Department of Labor, Bureau of Labor Statistics (Washington, D.C.: Government Printing Office, 1982), Table 5.

The Role of Women in the Civilian Labor Force

According to labor economist Robert W. Bednarzik, women composed 42.6 percent of the civilian labor force in 1980 (44 million participants). These figures indicated an increase of participation despite the recent recession. Bednarzik noted that most women were employed in the services-producing sector, which tends to be less responsive to cyclical movements in the economy than the manufacturing industries.[2]

Although women have experienced increased participation in the civilian labor force, research indicates that segregation by sex is still prevalent. Nancy Rytina, in the April 1982 issue of the *Monthly Labor Review*, explored occupational segregation by sex using the Current Population Survey to analyze wage differentials between men and women. Rytina concluded that male employment was concentrated within the higher-paying occupations such as management, administrative and technical work, and various craft occupations. Female employment, in constrast, was concentrated in the lower-paying areas such as clerical and service occupations. These statistics also indicated that full-time working women earned a median weekly salary of $224 in 1981; 64.5 percent of the men's median weekly salary of $347. A comparison of these ratios between 1967 and 1981 indicates an increase of only 2.5 percent.[3]

Shift From a Manufacturing-Based to a Services-Based Economy

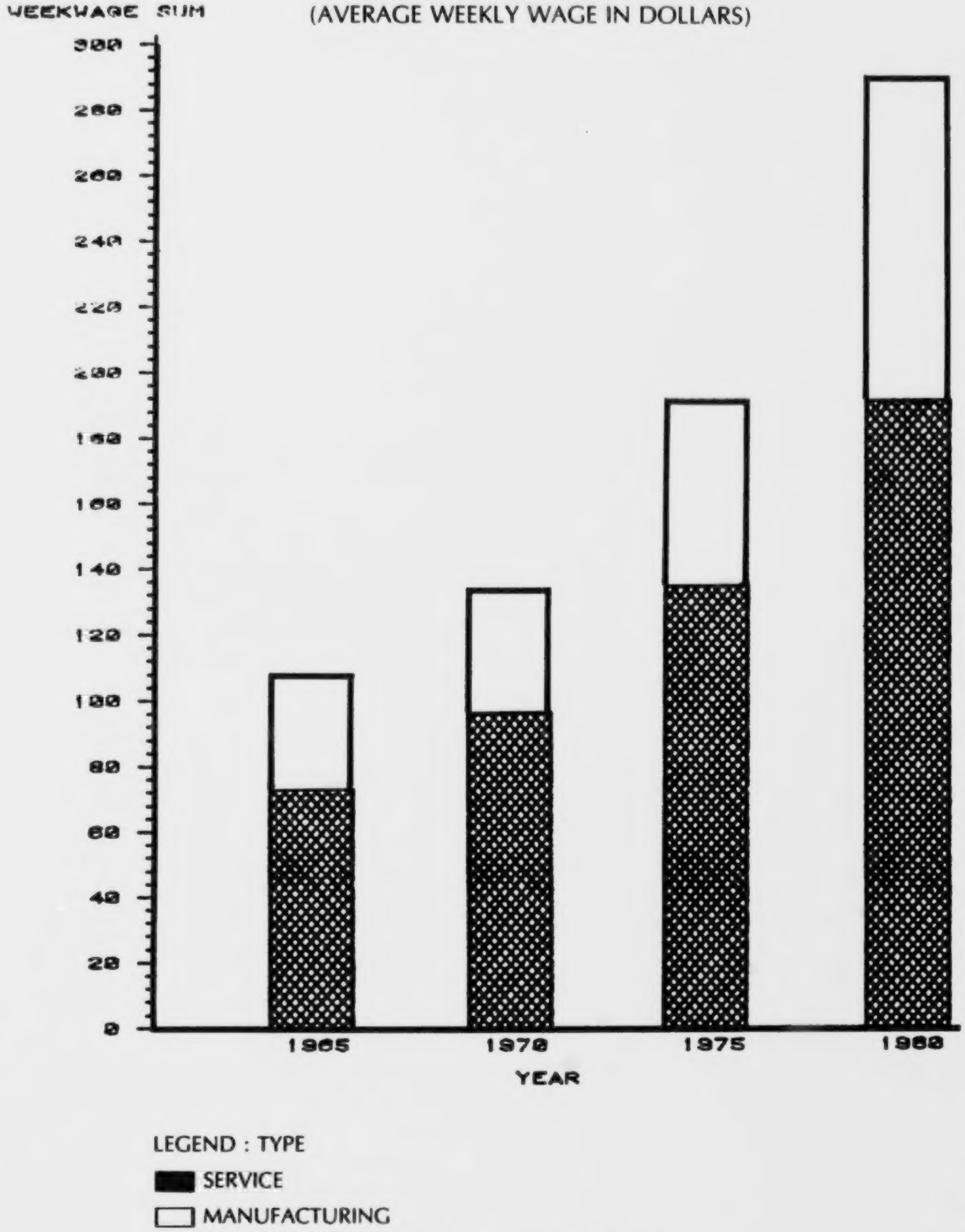
The current economic situation of unemployment and layoffs has prompted a reexamination of shifts within the U.S. labor force in an effort to develop effective policies to remedy these problems. The civilian labor force, which is made up of all persons between 16 and 65 years of age who are currently employed or looking for a job, is expected to increase by 17 percent (to about 122 million persons) by 1990. It is projected that the service industries will receive the greatest portion of this increase.[4] Between 1980 and 1990, service industries—which include such businesses as hotels, restaurants, hospitals, business services, and cleaning services—are expected to increase from 65.7 million to 78 million workers between 1980 and 1990.[5]

One of the main problems with the transition to a services-based economy is that salaries of service workers are traditionally lower than those of employees in the manufacturing industries. A comparison of the average annual salary of service workers with that of those employed in manufacturing occupations, between 1965 and 1980, indicates that the gap in salaries has been increasing steadily (*see Figure 1.2*). The average weekly salary in the manufacturing occupations in 1965 was $107.53, compared to $73.60 in the services occupations. By 1980, the average weekly manufacturing salary was $288, compared to $190 in the services. The salary gap between the two groups had increased from $34 to $98 over the 15 year period.

The need to examine and understand shifts within the labor force has prompted a renewed interest in such theories as *post industrial society*[6] and *dual labor market theory*.[7] The theories are useful in analyzing the data presented in this study. Many researchers (such as Daniel Bell, Harry Braverman, Victor R. Fuchs, C. Wright Mills, and Valerie Oppenheimer)[8] have anticipated the transition from a manufacturing-

WAGES OF SERVICE VS. MANUFACTURING EMPLOYEES 1965—1980

(AVERAGE WEEKLY WAGE IN DOLLARS)



SOURCE : EMPLOYMENT AND EARNINGS, BLS/DOL

FIGURE 1.2

based to a services-based economy for many years. Their studies have indicated that the portion of the labor force composed of service occupations has grown steadily from 1910 to 1960. Figure 1.3 contrasts the steady increase of service and clerical workers, with the drastic decline in farm workers and the gradual decline in manufacturing occupations since 1950 (*see Figure 1.3*).

Post-Industrial Society Theory

Daniel Bell defines a post-industrial society as one in which services rather than goods are the primary products. The post-industrial economy does not completely displace the industrial; the balance of production is merely shifted from one sector to the other.

Bell observed that future growth occupations were located in what he called the *services-producing sector,* which includes the following four areas:

Business Services:

Banking and finance; real estate; insurance carriers, agents and brokers; securities dealers; audit agencies.

Personal Services:

Retail trade (including general merchandise, food, apparel and accessories, and furniture and appliances stores; eating and drinking establishments); laundry; garages; beauty shops; advertising; motion pictures; hotels and lodging; other recreation.

Transportation, Public Utilities and Communities:

Railroad, air, motor freight and passenger transportation operators; radio, television and telephone workers; electrical, gas and oil companies; the technical support staff in each of these industries.

Health, Education, Research and Government:

Hospitals and related medical services; colleges and universities, research organizations; Federal, state and local government employees.

All but three of the top 20 most populous high growth occupations identified by the Bureau of Labor Statistics[10] and used in this research study would be considered part of the services producing sector as defined by Bell.

Dual Labor Market Theory

Dual labor market theorists view the U.S. labor market as divided into two sectors: primary and secondary.[11] Primary sector jobs offer relatively higher wages, good working conditions, and employment stability. Secondary sector jobs tend to be lower paying, with poor working conditions, little chance for advancement, considerable instability, and higher turnover rates.

The primary sector is further divided into two tiers. The upper tier is distinguished from the lower tier by higher pay, greater status, and more opportunity for promotion. Upper tier jobs often have specific educational requirements, while lower tier occupations frequently require only on-the-job training, and emphasize basic skills.

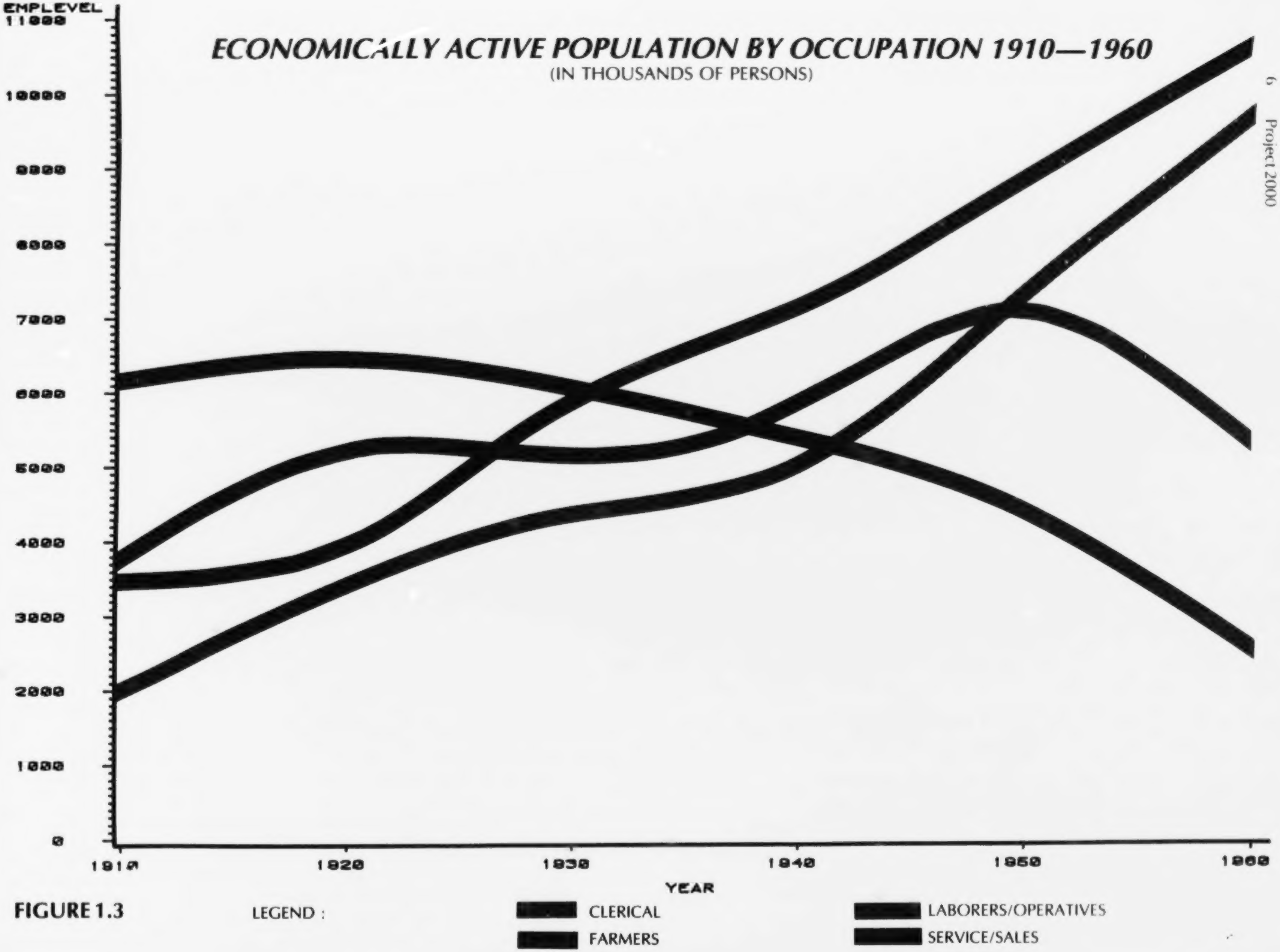

ECONOMICALLY ACTIVE POPULATION BY OCCUPATION 1910—1960
(IN THOUSANDS OF PERSONS)
EMPLEVEL
11000
10000
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
1910
1920
1930
1940
1950
1960
YEAR
LEGEND :
CLERICAL
FARMERS
LABORERS/OPERATIVES
SERVICE/SALES

FIGURE 1.3

Influence of Technology

There is widespread agreement that the new micro-technology, with its information and communications potential, is causing changes in the work force, perhaps more pervasive than those caused by the industrial revolution. There is less agreement, however, about whether this new technology will create millions of new jobs or result in plant shutdowns, the replacement of human workers with robots, and a decrease in the growth of traditional skilled jobs.

Great debate exists over which occupations should be classified as High Tech, and the extent of growth these occupations will experience. Studies have indicated that High Tech industries produce a relatively small portion of all new jobs. It is interesting to note, however, that they do provide a significant portion of new jobs in some states. Six out of ten High Tech jobs designated by Project 2000 are located in the ten most populous states.[12]

The Differential Effect of Unemployment on Minorities and Women

The differential effect of unemployment on minorities and women indicates the increasing importance of research in areas of future high growth occupations. Unemployment is usually characterized by both layoffs and permanent separations. Present data shows that the greater proportion of the increase in unemployment during the recent recession can be attributed to permanent separation rather than to layoffs. The occupations experiencing the highest percentage rates of permanent separation in 1982 were: blue collar workers (54.8 percent), operators—other than transportation equipment—(20.3 percent), and craft workers (16.7 percent).

Minorities and women composed a disproportionately large percentage of designated high growth occupation permanent separations in 1982 (*see Figure 1.4*). Black and other workers composed the significant portion of these separations, with transportation equipment operators, nonfarm laborers, and craft workers experiencing the highest incidences of unemployment. Female workers experienced the greatest likelihood of separation in the craft, management and administrative occupations.

Figure 1.4
Unemployment in Terms of Specific Occupations in 1982

Total Permanent Separation Occupation	Number	Permanent Separations % of Total Unemployed	% Women	% Unemployed Black and Others Combined
White-Collar Workers	1,181,000	28.5	38.2	43.1
Professional & Technical Workers	253,000	6.1	35.0	47.2
Managers and Administrators	214,000	5.2	46.4	52.0
Clerical Workers	548,000	13.2	38.4	42.5
Sales Workers	166,000	4.0	34.9	33.3
Blue-Collar Workers	2,269,000	54.8	35.2	53.1
Craftworkers	693,000	16.7	42.0	56.4
Operators, Except Transportation	841,000	20.3	34.7	47.9
Transportation Equipment Operators	225,000	5.4	31.0	62.7
Nonfarm Laborers	510,000	12.3	35.2	56.9
Service Workers	615,000	14.9	31.5	42.7
Farm Workers	77,000	1.9	35.7	40.5

Source: Robert W. Bednarzik, "Layoffs and Permanent Job Losses: Workers' Traits and Cyclical Patterns," *Monthly Labor Review* 106 (September 1983), pp. 6-7.

Education

According to C. Wright Mills, American educators during the 1930s adapted their curricula to provide students with the vocational skills necessary to fill jobs in manufacturing industries.[14] Today, however, students are increasingly ill-prepared to meet the challenges of the work place.

Shifts in the labor force and economy pose several questions for the current direction of American education:

- ✓ Has the quality of education diminished in terms of providing students with the basic skills needed to compete?
- ✓ Is the key to the problem that children are no longer being prepared for new jobs and the changing requirements for old ones?
- ✓ Have the overall minimum educational requirements become insufficient for the 1980s and 1990s technology that is transforming the industrial and service sectors?

Many training/educational programs have been developed by both the private and public sectors in the attempt to upgrade the educational skills of the U.S. labor force, and provide a solution to current economic and employment dilemmas. Chapter seven of this study provides examples of some successful joint ventures between the private and public sectors. However, additional research must be conducted to fully address some of these concerns and aid in the development of further programs.

Endnotes to Chapter One

1. U.S., Department of Labor, Bureau of Labor Statistics, *Occupational Outlook Handbook—1982-83 Edition* (Washington, D.C.: Government Printing Office, 1982), p. 13.

2. Robert W. Bednarzik, Marillyn A. Hewson and Michael A. Urquhart, "The Employment Situation in 1981: New Recession Takes its Toll," *Monthly Labor Review* 105 (March 1982), p. 8.

3. Nancy F. Rytina, "Earnings of Men and Women: A Look at Specific Occupations," *Monthly Labor Review* 105 (April 1982), pp. 25-31.

4. U.S., Department of Labor, *Occupational Outlook*, p. 16; Robert W. Bednarzik, "Layoffs and Perment Job Losses: Workers' Traits and Cyclical Patterns," *Monthly Labor Review* 106 (September 1983), p. 2.

5. U.S., Department of Labor, *Occupational Outlook*, p. 16.

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7. Peter B. Doeringer, and Michael J. Piore, *Internal Labor Markets and Manpower Analysis* (Lexington, Mass.: D.C. Heath and Co., 1971).

8. Victor R. Fuchs, "Differences in Hourly Earnings between Men and Women," *Monthly Labor Review* 94 (May 1971), pp. 9-15; Daniel Bell, *The Coming of Post-Industrial Society;* Harry Braverman, *Labor and Monopoly Capital, the Degradation of Work in the Twentieth Century* (New York: Monthly Review Press, 1974); Valerie Oppenheimer, *The Female Labor Force in the United States* (Berkeley, Calif.: Institute of International Studies, 1970); and C. Wright Mills, *White Collar* (New York: Oxford University Press, 1951).

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2

Scope of Research

Occupation Versus Industry Analysis

Growth in industries is clearly related to the growth of the individual occupations which make up that industry. Project 2000 focuses on occupations rather than industries because occupational data provides a more detailed view of the placement of minorities and women within the work force. In addition, strategies to modify the underemployment and unemployment of minorities and women are more easily linked to specific occupations because training and educational programs are primarily geared toward preparing individuals for specific occupations instead of industries.

Research Methodology

Project 2000 utilized the occupational growth projections developed by the Bureau of Labor Statistics to determine High Growth, High Tech, and High Loss occupations, and then assessed the 1980 participation rates for minorities and women within these designated areas. These participation rates were then summarized on a national and state-by-state basis.

Research began with a survey of the available literature on areas of growth in the labor force. The Bureau of Labor Statistics' study entitled "Occupational Employment Growth through 1990" was used to formulate the operational definitions used for High Growth, High Tech, and High Loss occupations.[1] A tape of the data used to develop these projections was also obtained.

This study incorporates use of the *low-trend alternative,* which assumes a decline in the expansion of the labor force, continued high inflation, and a modest increase in both production and productivity.

High Growth, High Tech, and High Loss Selection Criteria

The following criteria were used in the selection of the 20 High Growth, 10 High Tech, and 9 High Loss occupations included in this study.

High Growth Occupations

Occupations included in the High Growth category were selected for their large numbers of employees and high projected growth rates (according to BLS data). The 20 occupations selected by these criteria are expected to have the greatest employment potential.

High Tech Occupations

Since a definitive list of High Tech occupations was not available, Project 2000's list was derived from an extensive review of pertinent literature, and consultation with the Department of Labor and the Bureau of the Census. In addition, occupations needed to meet the following criteria to be selected.
Occupations must:

- ✓ be included in the Census and BLS
- ✓ have a substantial number of employees
- ✓ have a high projected growth rate
- ✓ have functions which involve the development and production of technically advanced products and services

High Loss Occupations

The Project 2000 list of High Loss occupations was derived from Bureau of Labor Statistics data, and included those occupations determined to have the largest number of employees and the highest loss rates. This selection procedure resulted in the inclusion of only nine occupations. The cut-off point was determined at nine occupations because the employee population of the tenth-ranked occupation was significantly smaller than that of the ninth. Also, the loss rate of the tenth-ranked occupation was not significant enough to overcompensate for its smaller employee population. These two factors indicated a logical place for determining which occupations to include in the High Loss category.

Utilization of BLS Projection Rates and 1980 Census Data

The BLS codes for each occupation selected for the High Growth, High Tech, and High Loss categories were subsequently matched with the 1980 Census occupational coding system to obtain the number of employees and minority distribution within each occupation. BLS 1990 projection rates were then utilized to develop 1990 em-

ployment figures for every group within each occupation. Because of the numerous data sets, and the varied estimates used by the BLS to develop these projection rates, we chose to apply the BLS rates to the 1980 Census data to obtain an estimate of future growth, rather than divide the projection rates by 12 (the number of years between 1978-1990) and then adjust that rate. The 1980 Census figure for a specific occupation was then multiplied by the BLS projection growth rate for the period between 1978 and 1990. The result was added to the 1980 Census figure to determine the total number expected to be employed in the occupation by 1990.
For example: the 1980 Census figure for the occupation "Secretary" (3,999,222) was multiplied by the BLS projection rate (21.03 percent) to arrive at the increase in the number of secretaries by 1990 (841,036). This increase was added to the 1980 Census figure to arrive at the 1990 projection (4,840,258).

$$3,999,222 \times 2103 = 841,036$$
$$841,036 + 3,999,222 = 4,840,258$$

1980 Census data were used to generate both national and state data on minority distribution within occupations. It should be noted, though, that the Census data tape used for the analysis of national trends was based upon a total civilian work force figure of 104,449,817 employees. This figure includes the unemployed. The tape developed by the Program Services Division for the state data did not include the unemployed and uses the total civilian labor force figure of 103,718,076. This exclusion, however, should not affect the number of minorities employed in specific High Growth, High Tech or High Loss occupations.

Limitations of BLS Projection Data

The BLS projections incorporated into this research are based upon the growth rate of each occupation from 1978 to 1980. These projections have factored in specific assumptions of which users should be aware, and therefore, "should consider projections as likely outcomes in light of current expected trends, not as forecasts of the future."[2]

The data from the BLS study were generated from the Occupational Employment Statistics (OES) survey, which collects data on occupational staffing patterns of industries.[3] All nonagricultural industries, except private households, are covered by this survey on a three year cycle: manufacturing industries during the first year, and half of the non-manufacturing industries in each of the next two years. Wage and salary employment totals for agricultural and private household industries were obtained from the Current Population Survey.

Projections of industry employment are translated into occupational employment projections through the use of an industry-occupational matrix.[4] BLS converted the National Industry Occupational Employment Matrix from a Census data base to an OES survey base in 1981. Staffing patterns that are reflective of data from the OES surveys are first projected to 1990, then to total employment of an industry and, finally, summed across all industries. This process yields employment projections for all occupations in the matrix. The projected employment of an occupation is determined by changes in the proportion of workers in each industry, and the growth rate of the industries in which an occupation is concentrated. An estimate is then made of the total number of job openings expected to occur in each occupation in addition to usual replacement needs.[5]

Occupations Included in the Study

Twenty Most Populous High Growth Occupations:

Blue-Collar Worker Supervisors
Secretaries
Helpers in the Trades
Truck Drivers
Automotive Mechanics
Janitors and Sextons
Sales Clerks
Elementary School Teachers
Bookkeepers, Hand
Cashiers
General Clerks, Office
Typists
Waiters and Waitresses
Nurse's Aides and Orderlies
Nurses, Professional
Kitchen Helpers
Accountants and Auditors
Guards and Doorkeepers
Licensed Practical Nurses
Food Preparation and Service Workers

A threshold question with regard to the selection of High Growth occupations was whether or not the EEOC wanted to be in the position of developing policy recommendations aimed at these occupations, some of which are not commonly classified as *professional*. Project 2000 staff decided that these occupations did deserve consideration since they employed more than 39 percent of the total civilian labor force in 1980, more than 41 million workers. Most importantly, according to projections developed by BLS, over 11 million new jobs will be created in these 20 occupations by 1990.

Ten Most Populous High Tech Occupations:

Electrical and Electronic Assemblers
Computer Programmers
Computer Operators
Electrical Engineers
Electrical and Electronic Technicians
Mechanical Engineers
Industrial Engineers
Computer Systems Analysts
Data Processing Machine Mechanics
Peripheral EDP Equipment Operators

The study also acknowledges the importance of the expansion in High Tech areas. High Tech industries and occupations have been a major focus of policymakers and the media, and although there is much debate on the degree of expansion High Tech fields will experience, most researchers agree that the area will produce a considerable number of new jobs.

Nine Most Populous High Loss Occupations:

Farm Laborers
Farmers, Owners & Tenants
Secondary School Teachers
Compositors and Typesetters
Maids and Servants, Private
Teachers, College
Taxi Drivers
Child Care Workers, Private
Housekeepers, Private

The Project 2000 staff selected the High Loss occupations from the occupational breakdown developed by BLS (see section on research methodology for a more detailed discussion). In reviewing the list of High Loss occupations, we had expected to find that jobs related to industrial production would rank high on the chart. Most of the occupations which met our High Loss selection criteria, however, are not affected by industrial shutdowns and layoffs.

Additional Growth Occupations

Although many professional occupations did not meet our criteria for High Growth, some will show slight but significant increases in employment by 1990. Figure 2.1 includes occupations which we defined as *professional,* and employed more than 100,000 persons in 1978. We did not choose to conduct an extensive analysis of these professional occupations since they currently employ a relatively small proportion of the work force and are not expected to produce large numbers of new jobs. However, to assist states in developing their own projections, we have included the number employed in 1978, and the BLS growth rate.

Figure 2.1
Professional Jobs:
Number Employed in 1978 and Projected Rates of Change Between 1978 and 1990

Professional Occupations	Number Employed in 1978 National CLF	Projected Percentage Change 1978-1990
Dentists	149,000	39.59%
Pharmacists	140,000	13.36%
Physicians	447,000	39.98%
Therapists	139,000	51.51%
Commercial Artists	100,000	22.25%
Musicians	126,000	27.15%
Lawyers	380,000	37.85%
Librarians	130,000	6.78%
Writers and Editors	109,000	30.33%

Source: Max L. Carey, "Occupational Employment Growth through 1990," *Monthly Labor Review* 104 (August 1981), pp. 49-53.

Endnotes to Chapter Two

1. Max L. Carey, "Occupational Employment Growth through 1990," *Monthly Labor Review* 104 (August 1981), pp.42-54.

2. U.S. Department of Labor, Bureau of Labor Statistics, *Handbook of Methods* (December 1982), pp. 135-136

3. Ibid.

4. Ibid.

5. Ibid.

3

Project 2000 Major Findings

This chapter highlights some of the specific findings of Project 2000. It presents data on areas of projected employment growth with a specific focus on minorities and women. Although much of this data is projected statistics which should be viewed as the *likely outcome* rather than prediction, it can be used to identify and prepare for the changing needs of the job market.

1980 Civilian Labor Force: High Growth, High Tech, High Loss

The 1980 civilian labor force totaled more than 104 million workers. Nearly 52.5 million people were employed in the 39 High Growth, High Tech and High Loss occupations chosen for this study: 48.7 percent of the CLF.

The individual totals and percents were as follows:

	1980 Total Employees	**% of 1980 CLF**
High Growth	41,504,050	39.7
High Tech	3,945,632	3.0
High Loss	7,045,465	6.0

Minority participation in the 1980 CLF was 18 percent. Their rate of employment in individual categories was as follows: *(see Figure 3.1)*

	1980 Minority Employees	**% of Category**
High Growth	7,986,964	19.2
High Tech	768,698	19.5
High Loss	1,684,660	23.9

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Female participation, nonminority and minority, in the 1980 CLF was 42.6 percent. Their rate of employment in individual categories was as follows: *(see Figure 3.2)*

	1980 Female Employees	**% of Category**
High Growth	22,864,007	55.1
High Tech	1,425,660	36.1
High Loss	2,944,593	41.8

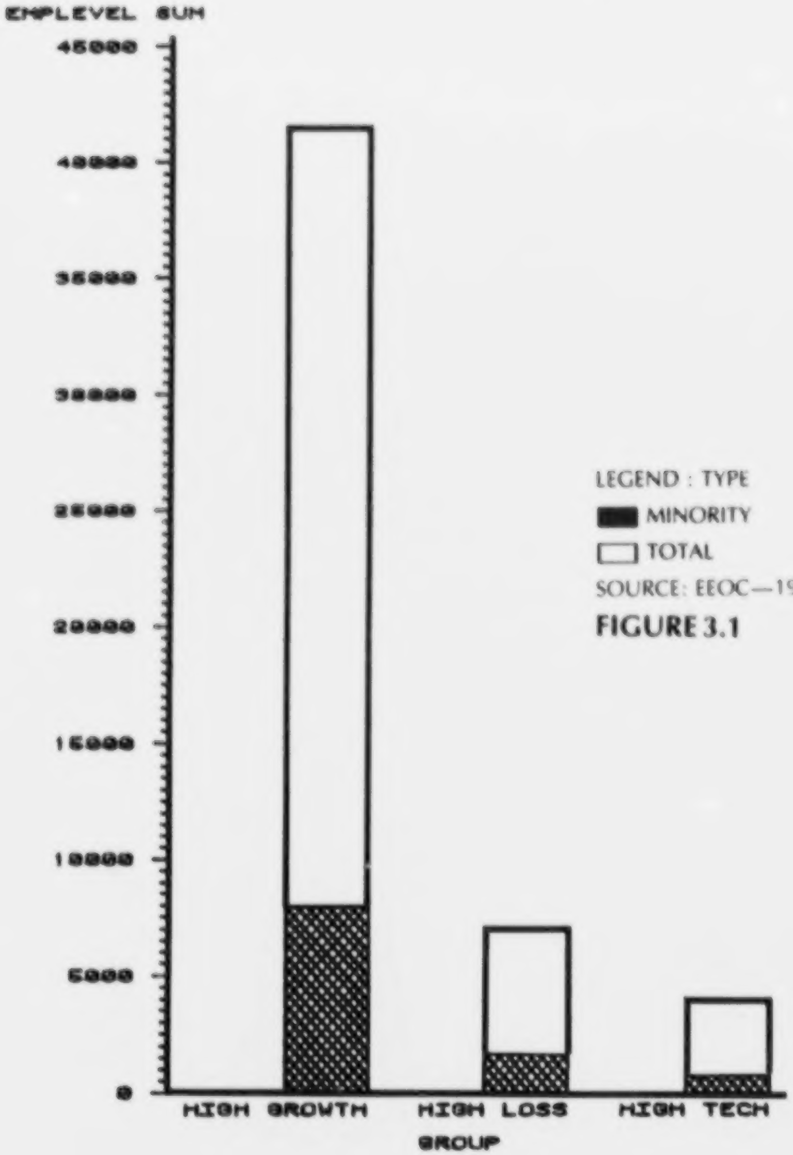
The largest portion of the 1980 work force was employed in the most populous states: California, Texas, Illinois, New York, Pennsylvania, Michigan, Ohio, North Carolina, Georgia, and Florida. The smallest portion was employed in the least populous states: Maine, New Hampshire, Vermont, Rhode Island, Delaware, West Virginia, Wyoming, South Dakota, North Dakota, Montana, Idaho, Nevada, Alaska, and Hawaii *(see Figure 3.3)*.

The most populous states had the largest numbers of minority employees; the least populous had the smallest numbers *(see Figure 3.4)*.

High Growth and High Tech occupations were uniformly distributed across all states, with the major variations in work force size attributed to the state's population. High Loss occupations were concentrated in several states: California, New York, and Texas *(see Figures 3.5, 3.6 and 3.7)*.

1980 REPRESENTATION OF MINORITIES BY OCCUPATION GROUPS

(IN THOUSANDS OF PERSONS)



LEGEND : TYPE

▨ MINORITY

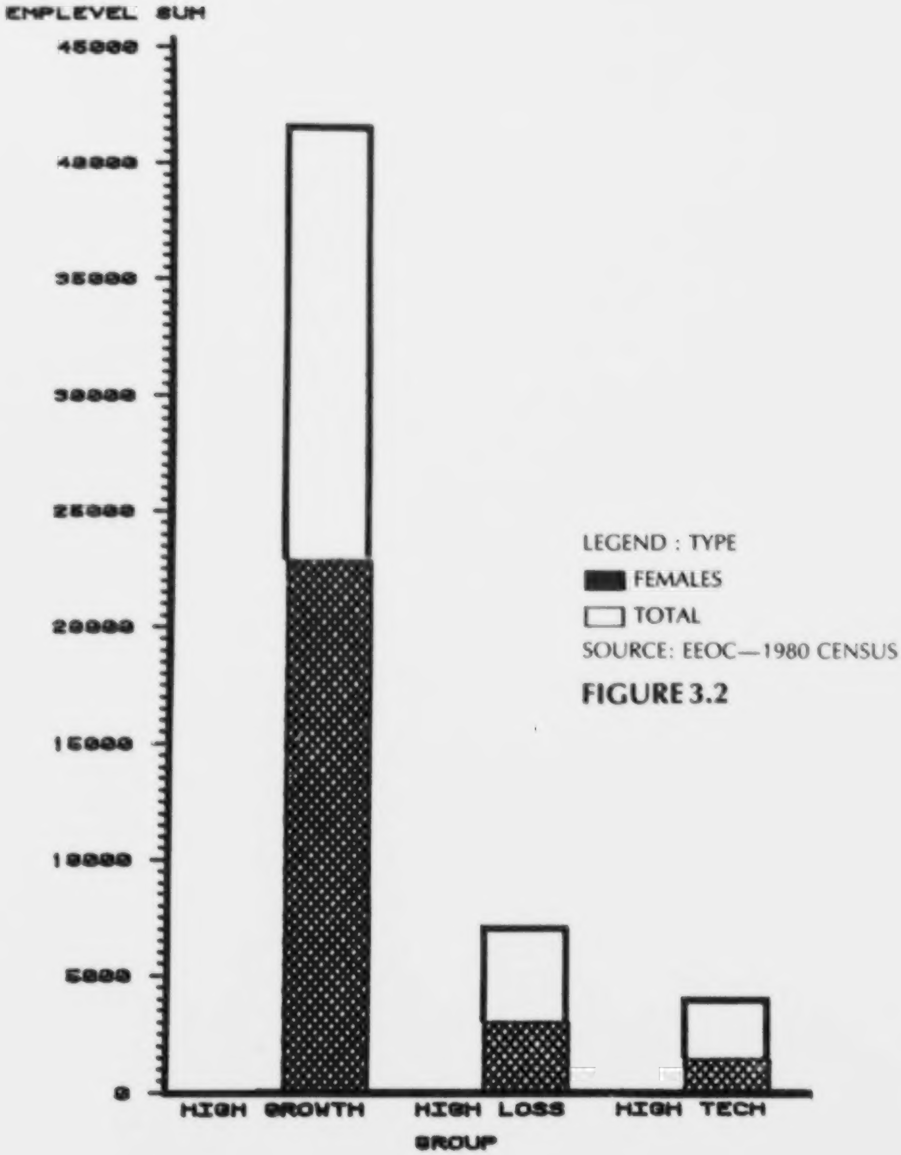
☐ TOTAL

SOURCE: EEOC—1980 CENSUS

FIGURE 3.1

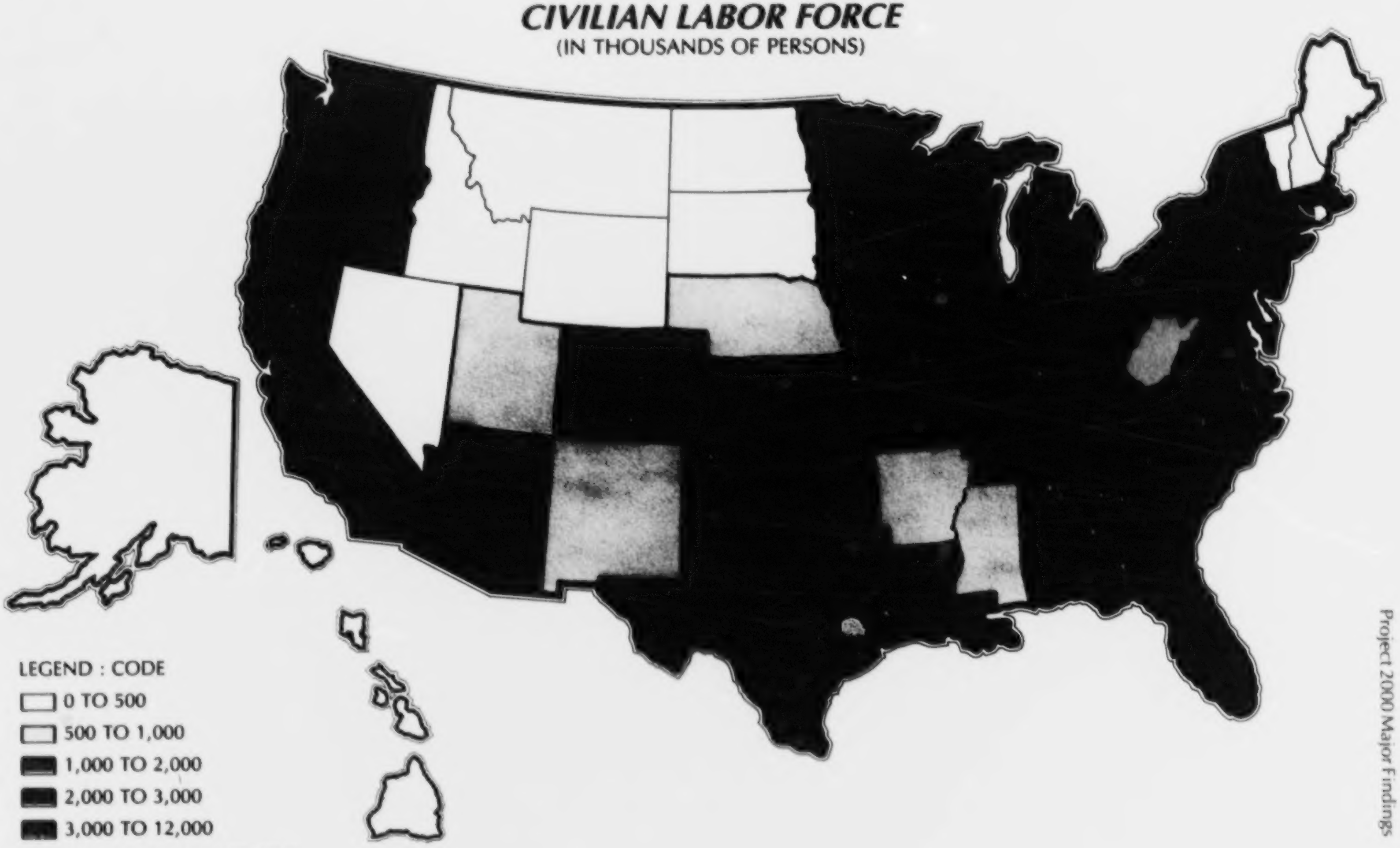
1980 REPRESENTATION OF WOMEN BY OCCUPATION GROUPS

(IN THOUSANDS OF PERSONS)



SOURCE: EEOC—1980 CENSUS

FIGURE 3.2


CIVILIAN LABOR FORCE
(IN THOUSANDS OF PERSONS)
LEGEND : CODE
☐ 0 TO 500
☐ 500 TO 1,000
■ 1,000 TO 2,000
■ 2,000 TO 3,000
■ 3,000 TO 12,000

SOURCE: EEOC—1980 CENSUS

FIGURE 3.3

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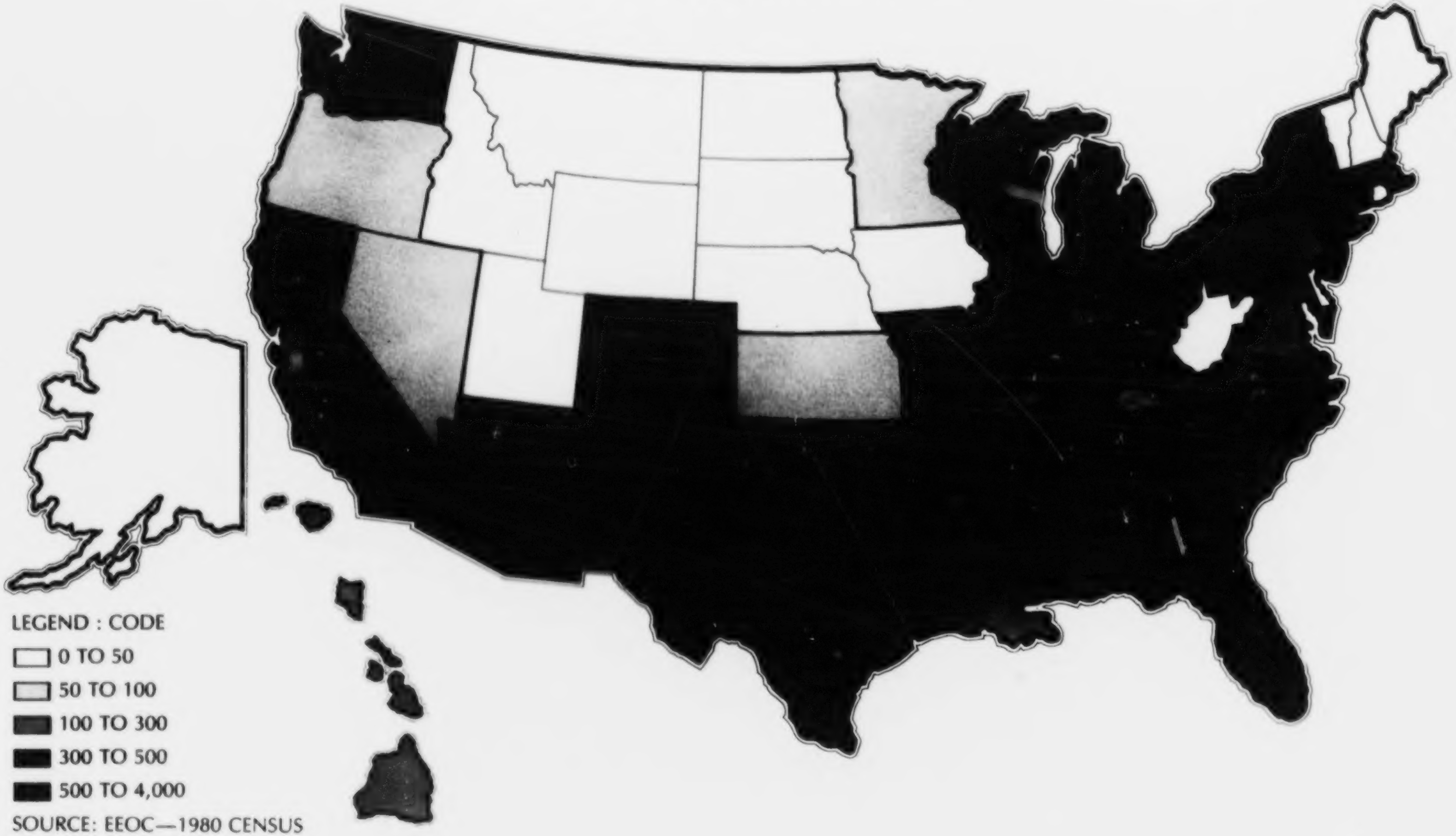
TOTAL MINORITY EMPLOYMENT

(IN THOUSANDS OF PERSONS)


LEGEND : CODE
☐ 0 TO 50
▨ 50 TO 100
■ 100 TO 300
■ 300 TO 500
■ 500 TO 4,000

SOURCE: EEOC—1980 CENSUS

FIGURE 3.4

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High Growth Occupations

Civilian Labor Force

The 20 High Growth occupations designated by Project 2000 composed almost 40 percent of the U.S. civilian labor force in 1980: more than 41 million workers. These occupations, as an aggregate, are expected to create more than 11 million new jobs by 1990. This increase will bring the total number working in High Growth occupations to over 52 million.

The following five most populous High Growth occupations employed almost 19 million workers in 1980, and are projected to employ more than 23 million by 1990:

Occupation	1980*	% Change 1978-1990	1990*
√ Blue-Collar Worker Supervisors	4,825,000	17.36	5,663,000
√ Secretaries	3,998,000	21.03	4,810,000
√ Helper in the Trades	3,538,000	25.04	4,424,000
√ Truck Drivers	3,334,000	26.16	4,206,000
√ Automotive Mechanics	3,201,000	24.25	3,977,000

*Rounded to the nearest thousand

The following three High Growth occupations are expected to experience the greatest percentages of increase by 1990:

Occupation	1980	% Change 1978-1990	1990
√ Food Preparation and Service Workers	211,965	68.84	357,882
√ Nurse's Aides and Orderlies	1,378,118	54.56	2,130,019
√ Nurses, Professional	1,304,850	50.28	1,960,929

Overview: Minorities and Women

Minority men and women, and nonminority women composed 64.1 percent of the High Growth work force in 1980 (19.2 percent minorities, and 44.9 percent nonminority women). The distribution of minority groups was as follows:

	Number	Percent
√ Total minorities	7.9 million	19.2
√ Black men and women	4.5 million	11.1
√ Hispanic men and women	2.5 million	6.0
√ Asian men and women	645,000	1.6
√ American Indian men and women	219,000	0.5
√ Nonminority women	18.6 million	44.9

Minorities

In 1980, the aggregate minority participation rate in the High Growth occupations (19.2 percent) exceeded the aggregate minority participation rate in the national CLF (18.0 percent). Minority women also represented 1 percent more of the High Growth work force than minority men (10.1 percent compared to 9.1 percent). *(see Chapter 3-Tables 4, 5)*

The three High Growth occupations which had the highest percentages of minority employment in 1980 were *(see Chapter 4-Table 1)*:

√ Janitors and Sextons	36.5%	*(1,022,462)*
√ Nurse's Aides and Orderlies	34.6%	*(476,912)*
√ Kitchen Helpers	27.5%	*(306,504)*

The three High Growth occupations which had the lowest percentages of minority employment in 1980 were:

√ Bookkeepers, Hand	10.0%	*(189,337)*
√ Secretaries	11.0%	*(439,717)*
√ Blue-Collar Worker Supervisors	12.0%	*(577,161)*

The three High Growth occupations which had the greatest numbers of minority employees in 1980 were:

√ Janitors and Sextons	1,022,462	*(36.5%)*
√ Helpers in the Trades	930,420	*(26.3%)*
√ Truck Drivers	772,332	*(23.2%)*

The three High Growth occupations which had the lowest numbers of minority employees in 1980 were:

√ Food Preparation and Service Workers	37,768	*(17.8%)*
√ Licensed Practical Nurses	102,044	*(23.4%)*
√ Accountants and Auditors	124,168	*(12.3%)*

Blue-Collar Worker Supervisors and Secretaries were the two most populous High Growth occupations in 1980, and are expected to remain so in 1990. Both had low percentages of minority employment: 12 percent and 11 percent, respectively.

Helpers in the Trades had a relatively high percentage of minority employees in 1980 (26.3 percent); the second highest number employed in a High Growth occupation. This occupation is predicted to have the greatest net gain by 1990: 885,877 workers.

Nurses Aides and Orderlies had the second highest percentage of minority employees among High Growth occupations: 34.6 percent, or 476,912 workers. It has the second highest projected growth rate for 1990, 54.56 percent, and expects a net gain of 751,901 positions.

Women

In 1980, the aggregate nonminority female participation rate in High Growth occupations (44.9 percent) exceeded their participation rate in the national CLF (34.3 percent) by 10.6 percent. The participation rate of minority females in High Growth occupations also exceeded their national CLF participation rate: 10.0 percent compared to 8.3 percent *(see Chapter 3-Tables 4, 5)*.

Women, minority and nonminority combined, filled a greater percentage of High Growth jobs than minority and nonminority men combined: 55.1 percent compared to 44.9 percent. Twelve of the 20 High Growth occupations employed more than 70 percent women. Nonminority females constituted the majority of the High Growth work force with 44.9 percent participation, outnumbering nonminority men (35.8 percent) by more than 1 percent. Minority women also filled 1 percent more positions than minority men: 10.1 percent compared to 9.1 percent.

The three High Growth occupations which had the highest percentages of female employment in 1980 were *(see Chapter 4-Table 1)*:

	All		**Nonminority**		**Minority**	
✓ Secretaries	98.8%	*(3,949,973)*	88.0%	*(3,518,594)*	10.8%	*(431,379)*
✓ Licensed Practical Nurses	96.6%	*(420,412)*	74.1%	*(322,480)*	22.5%	*(97,932)*
✓ Nurses, Professional	95.8%	*(1,249,499)*	83.3%	*(1,086,868)*	12.5%	*(162,631)*

The three High Growth occupations which had the lowest percentages of female employment in 1980 were:

	All		**Nonminority**		**Minority**	
✓ Truck Drivers	8.2%	*(274,003)*	5.9%	*(196,542)*	2.3%	*(77,461)*
✓ Guards and Doorkeepers	10.3%	*(102,690)*	7.4%	*(73,702)*	2.9%	*(28,988)*
✓ Blue-Collar Worker Supervisor	14.8%	*(713,723)*	12.4%	*(598,603)*	2.4%	*(115,120)*

The three High Growth occupations which had the greatest numbers of female employees in 1980 were:

	All		**Nonminority**		**Minority**	
✓ Secretaries	3,949,973	*(98.8%)*	3,518,594	*(88.0%)*	431,379	*(10.8%)*
✓ Sales Clerks	1,766,116	*(71.6%)*	1,550,804	*(62.8%)*	215,312	*(8.7%)*
✓ Elementary School Teachers	1,749,547	*(75.5%)*	1,471,072	*(63.4%)*	278,475	*(12.0%)*

The three High Growth occupations which had the lowest numbers of female employees in 1980 were:

	All	Nonminority	Minority
√ Guards and Doorkeepers	102,690 *(10.3%)*	73,702 *(7.4%)*	28,988 *(2.9%)*
√ Food Preparation and Service Workers	171,867 *(81.8%)*	143,358 *(7.6%)*	28,509 *(13.4%)*
√ Truck Drivers	274,003 *(8.2%)*	196,542 *(5.9%)*	77,461 *(2.3%)*

Blue-Collar Worker Supervisors and Truck Drivers had the lowest percentages of female employees in 1980. These occupations are expected to have some of the highest net gains by 1990.

Secretaries composed the second greatest portion of the High Growth category in 1980, and are expected to do so in 1990. The projected growth rate is 21.03 percent, or 841,036 jobs. In 1980, nearly 99 percent of all secretaries were women: 88.0 percent nonminority, and 10.8 percent minority.

Geographic Distribution

High Growth occupations were evenly distributed across all states in 1980, composing from 30 to 40 percent of their civilian work forces. The largest numbers of employees in High Growth fields were found in the most populous states: California, New York, Texas, Illinois, and Pennsylvania *(see Figure 3.5)*. Alaska, Vermont, and Wyoming had the smallest numbers of employees in High Growth occupations.

Educational and Skill Requirements

The ten High Growth occupations requiring a minimal level of skills for entry were:

Cashiers
Clerks, Office
Food Preparation and Service Workers
Guards and Doorkeepers
Helpers in the Trades
Kitchen Helpers
Nurse's Aides and Orderlies
Sales Clerks
Waiters and Waitresses
Janitors and Sextons

The High Growth occupations requiring specific training and/or education were:

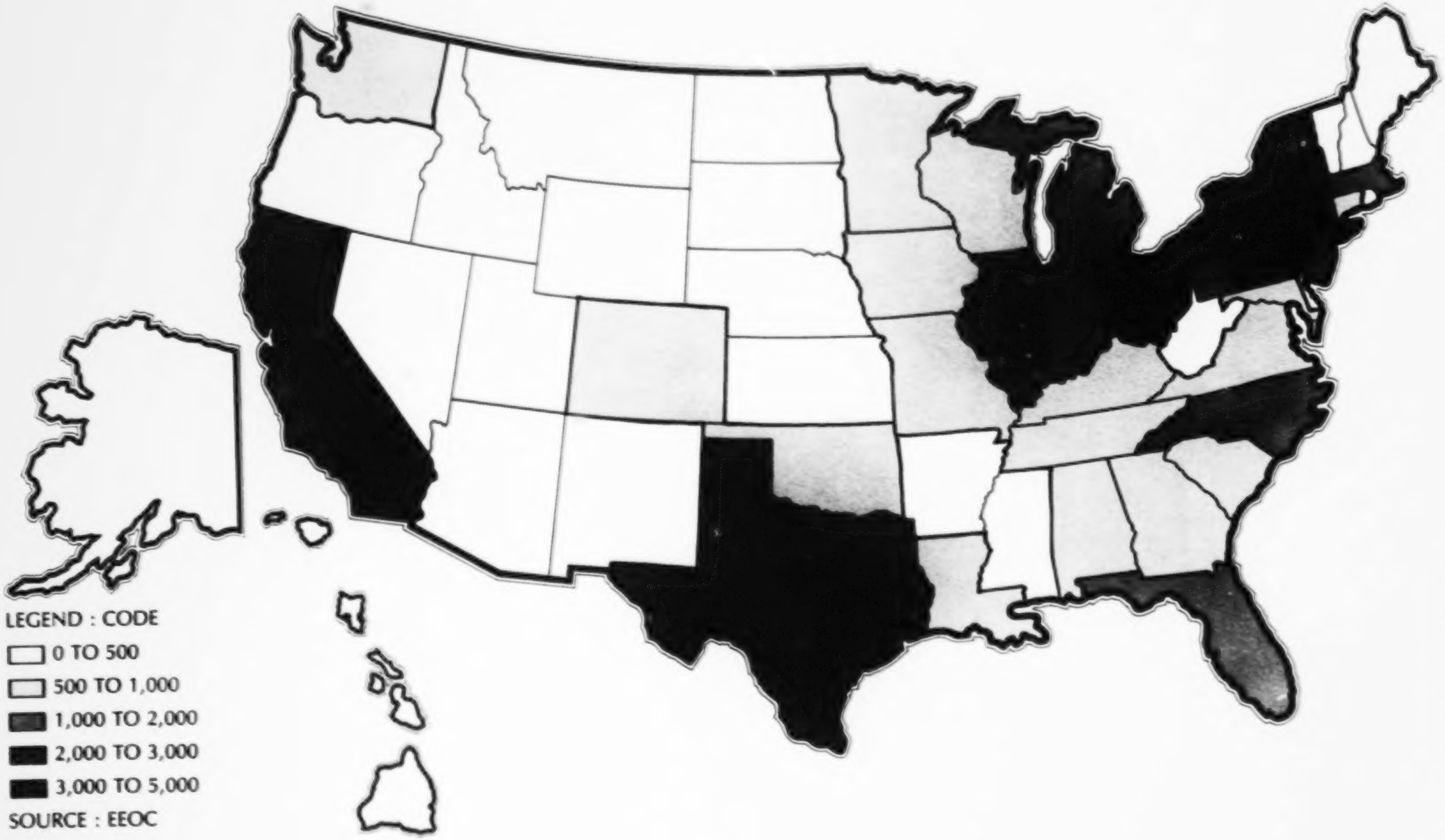
Automotive Mechanics
Accountants and Auditors
Bookkeepers, Hand
Licensed Practical Nurses
Registered or Professional Nurses
Blue-Collar Worker Supervisors

The High Growth occupations requiring a college degree were:

Accountants and Auditors
Nurses, Professional
Elementary School Teachers

HIGH GROWTH EMPLOYMENT

(IN THOUSANDS OF PERSONS)


LEGEND : CODE
☐ 0 TO 500
▨ 500 TO 1,000
▨ 1,000 TO 2,000
■ 2,000 TO 3,000
■ 3,000 TO 5,000

SOURCE : EEOC

FIGURE 3.5

High Growth occupations which had the greatest percentages and numbers of minority employees in 1980 require minimal skills for job entry.

A large portion of women in High Growth areas, primarily nonminority, participated in occupations which require specific skills and training, or a college degree.

High Tech Occupations

Civilian Labor Force

The ten High Tech occupations designated by Project 2000 employed over 3 percent of the U.S. CLF in 1980: almost 4 million workers. These occupations, as an aggregate, are expected to experience a 55 percent growth increase by 1990, creating over 2 million new jobs. This will bring the total number of people employed in High Tech occupations to over 6 million.

The following five most populous High Tech occupations employed slightly over 3 million workers in 1980, and are projected to employ almost 4.5 million by 1990 *(see Chapter 3 - Table 2)*:

Occupation	**1980**	**% Change 1978-1990**	**1990**
✓ Electrical and Electronic Assemblers	1,699,700	34.24	2,281,677
✓ Computer Programmers	499,626	73.57	780,416
✓ Computer Operators	395,547	87.90	743,233
✓ Electric Engineers	322,874	51.18	488,121
✓ Electrical and Electronic Technicians	266,184	45.42	387,085

The following three High Tech occupations are expected to experience the greatest percentages of increase by 1990 *(see Chapter 3 - Table 2)*:

Occupation	**1980**	**% Change 1978-1990**	**1990**
✓ Data Processing Machine Mechanics	165,321	147.62	409,368
✓ Computer Systems Analysts	202,651	107.75	421,007
✓ Computer Operators	395,547	87.9	743,233

Although far fewer workers were employed in High Tech than High Growth areas in 1980, BLS low-trend growth rates indicate that the net increases in some High Tech fields by 1990 will be comparable to those for some High Growth occupations. However, despite the tremendous predicted increase of High Tech areas, nearly 150 percent in one instance, most new jobs are expected to be in the High Growth occupations.

Overview: Minorities and Women

Minority men and women, and nonminority women composed 46.9 percent of the High Tech work force in 1980 (19.5% minorities, and 27.4% nonminority women). The distribution of specific minority groups was as follows *(see Chapter 3 - Table 6)*:

	Number	**Percent**
✓ Total minorities	768,698	19.5
✓ Black men and women	395,010	10.0
✓ Hispanic men and women	246,802	6.3
✓ Asian men and women	106,120	2.7
✓ American Indian men and women	16,213	0.4
✓ Nonminority women	1 million	27.4

Minorities

In 1980, the aggregate minority participation rate in the designated High Tech occupations (19.5%) exceeded the aggregate minority participation rate in the CLF (18.0%) by 1.5 percent. Hispanics and Asians both had greater participation rates in the High Tech occupations than in the CLF *(see Chapter 3 - Table 4, 6)*.

The three High Tech occupations which had the highest percentages of minority participation in 1980 were *(see Chapter 4 - Table 2)*:

✓ Electrical and Electronic Assemblers	27.6%	*(469,752)*
✓ Peripheral EDP Equipment Operators	20.6%	*(5,145)*
✓ Computer Operators	19.9%	*(78,570)*

The three High Tech occupations which had the lowest percentages of minority participation in 1980 were:

✓ Industrial Engineers	7.3%	*(14,879)*
✓ Mechanical Engineers	8.3%	*(17,764)*
✓ Electrical Engineers	10.2%	*(32,868)*

The three High Tech occupations which had the greatest numbers of minority employees in 1980 were:

✓ Electrical and Electronic Assemblers	469,752	*(27.6%)*
✓ Computer Operators	78,570	*(20.6%)*
✓ Computer Programmers	66,784	*(14.9%)*

The three High Tech occupations which had the smallest numbers of minority employees in 1980 were:

✓ Peripheral EDP Equipment Operators	5,145	*(20.6%)*
✓ Industrial Engineers	14,879	*(7.3%)*
✓ Mechanical Engineers	17,764	*(8.3%)*

In 1980, the greatest numbers of minority High Tech employees were located in the most populous occupations: Electrical and Electronic Assemblers, Computer Operators, and Computer Programmers. These are expected to remain among the most populous High Tech fields in 1990.

Women

In 1980, the aggregate female participation rate in High Tech occupations (36.1 percent) was over 6 percent lower than their participation in the CLF. This is attributed to a lower percentage of participation among nonminority women: 27.4 percent compared to 34.3 percent in the CLF. Minority women, however, filled a greater percentage of High Tech jobs than in the CLF: 8.8 percent compared to 8.3 percent in the CLF *(see Chapter 3 - Tables 4, 6)*.

The three High Tech occupations which had the highest percentages of female employment in 1980 were *(see Chapter 4 - Table 2)*:

	All		**Nonminority**		**Minority**	
✓ Peripheral EDP Equipment Operators	61.7%	*(15,441)*	49.9%	*(12,490)*	11.8%	*(2,951)*
✓ Computer Operators	59.1%	*(233,611)*	47.7%	*(188,669)*	11.4%	*(44,942)*
✓ Electrical and Electronic Assemblers	49.5%	*(841,158)*	35.3%	*(600,837)*	14.1%	*(240,321)*

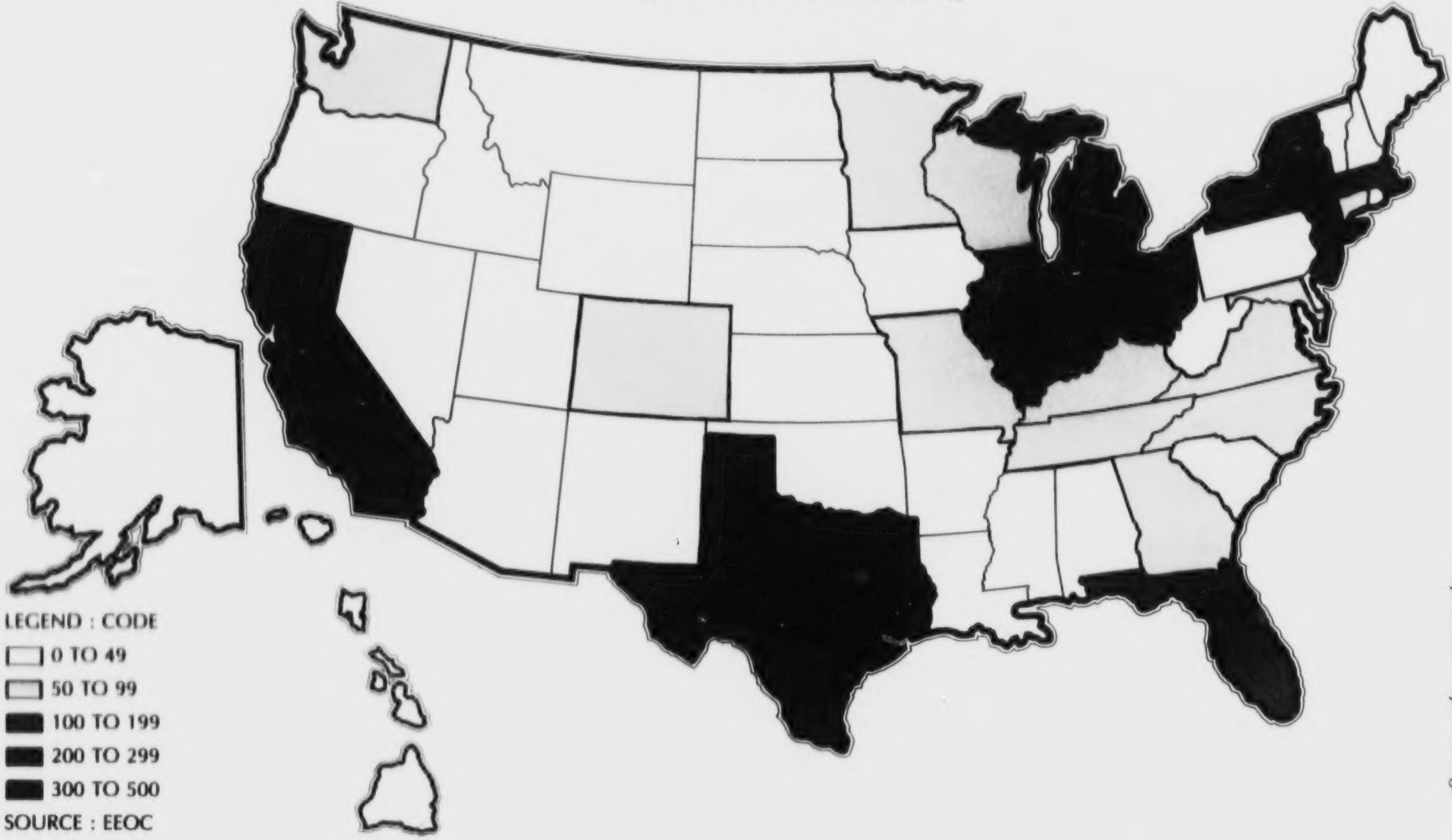
The three High Tech occupations which had the lowest percentages of female employment in 1980 were:

	All		**Nonminority**		**Minority**	
✓ Mechanical Engineers	2.0%	*(4,386)*	1.7%	*(3,750)*	0.3%	*(636)*
✓ Electrical Engineers	5:0%	*(16,179)*	4.1%	*(13,344)*	0.9%	*(2,835)*
✓ Data Processing Machine Mechanics	5.1%	*(8,377)*	4.0%	*(6,615)*	1.1%	*(1,762)*

The three High Tech occupations which had the greatest numbers of female employees in 1980 were:

	All		**Nonminority**		**Minority**	
✓ Electrical and Electronic Assemblers	841,158	*(49.5%)*	600,837	*(35.3%)*	240,321	*(14.1%)*
✓ Computer Operators	233,611	*(59.1%)*	188,669	*(47.7%)*	44,942	*(11.4%)*
✓ Computer Programmers	210,699	*(46.9%)*	173,901	*(38.7%)*	36,798	*(8.2%)*

HIGH TECH EMPLOYMENT
(IN THOUSANDS OF PERSONS)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SOURCE : EEOC

FIGURE 3.6

The three High Tech occupations which had the lowest numbers of female employees in 1980 were:

√ Mechanical Engineers	4,386 *(2.0%)*	3,750 *(1.7%)*	636 *(0.3%)*
√ Data Processing Machine Mechanics	8,377 *(5.1%)*	6,615 *(4.0%)*	1,762 *(1.1%)*
√ Peripheral EDP Equipment Operators	15,441 *(61.7%)*	12,490 *(49.9%)*	2,951 *(11.8%)*

Most women were employed in the most populous High Tech occupations in 1980. These occupations are expected to remain in that category in 1990.

Geographic Distribution

In 1980, the five most populous states had the largest numbers of workers employed in High Tech occupations. The states with the smallest numbers of employees in High Tech fields were: Alaska, Wyoming, and North and South Dakota *(see Figure 3.6)*.

Educational and Skill Requirements

The majority of High Tech occupations require some college education and frequently, a college degree. The following occupations fall within this category:

√ Computer Programmers
√ Computer Systems Analysts
√ Electrical and Electronic Technicians
√ Industrial Engineers
√ Electrical Engineers

The fact that some High Tech positions require little training and education is frequently overlooked. The following occupations are relatively easy to enter:

√ Computer Operators
√ Peripheral EDP Operators
√ Electrical and Electronic Assemblers

Most women and minorities employed in the High Tech category in 1980 held jobs which required little training or education for entry.

High Loss Occupations

Civilian Labor Force

The nine High Loss occupations designated by Project 2000 employed more than 6 percent of the 1980 U.S. CLF: more than 7 million workers. These occupations, as an aggregate, are expected to experience a net loss of one million jobs by 1990.

This decrease will bring the total number employed in High Loss occupations to slightly under 6 million.

The following three most populous High Loss occupations employed slightly over 5 million workers in 1980, and are expected to experience a net loss of 1,072,585 jobs by 1990:

	1980	% Change 1978-1990	1990
√ Farm Laborers	2,994,046	-25.42	2,232,960
√ Farmers, Owners and Tenants	1,158,548	-16.96	962,058
√ Secondary School Teachers	893,624	-12.87	778,615

The following three High Loss occupations have the highest projected loss rates. Two of these occupations—farm laborers, and farmers (owners and tenants)—were the most populous of the High Loss occupations. They employed more than 4 million in 1980, and it is projected that more than 900,000 jobs will be lost in these two occupations by 1990.

	1980	% Change 1978-1990	1990
√ Farm Laborers	2,994,046	-25.42	2,232,960
√ Farmers, Owners and Tenants	1,158,548	-16.96	962,058
√ Childcare Workers, Private	159,915	-15.32	135,416

Overview: Minorities and Women

Minority men and women, and nonminority women composed 54 percent of the High Loss workforce in 1980 (23.9 percent minorities, and 30.1 percent nonminority women). The distribution of specific minority groups was as follows:

	Number	Percent
√ Total minorities	1,684,660	23.9
√ Black men and women	948,065	13.5
√ Hispanic men and women	596,339	8.5
√ Asian men and women	90,943	1.3
√ American Indian men and women	42,211	0.6
√ Nonminority women	2 million	30.1

Minorities

In 1980, aggregate minority participation in the designated High Loss occupations exceeded their total participation in the CLF by almost 6 percent: 23.9 percent compared to 18.0 percent *(see Chapter 3-Tables 4,7)*.

The three High Loss occupations which had the highest percentages of minority employment in 1980 were *(see Chapter 4 - Table 3)*:

√	Maids and Servants	64.6%	*(248,127)*
√	Housekeepers, Private	57.4%	*(39,594)*
√	Taxi Drivers	34.3%	*(64,438)*

The three High Loss occupations which had the lowest percentages of minority employment in 1980 were:

√	Farmers, Owners and Tenants	3.3%	*(37,897)*
√	Secondary School Teachers	11.4%	*(101,782)*
√	Teachers, College	11.5%	*(37,948)*

The three High Loss occupations which had the greatest numbers of minority employees in 1980 were:

√	Farm Laborers	949,806	*(31.7%)*
√	Maids and Servants	248,127	*(64.6%)*
√	Compositors and Typesetters	175,647	*(20.2%)*

The three High Loss occupations which had the lowest numbers of minority employees in 1980 were:

√	Childcare Workers	29,421	*(18.4%)*
√	Farmers, Owners and Tenants	37,897	*(3.3%)*
√	Teachers, College	27,948	*(11.5%)*

Women

In 1980, the aggregate female participation in the High Loss occupations (41.8 percent) was approximately 1 percent lower than their participation in the CLF (42.6 percent). Minority women had a higher rate of participation in High Loss occupations than in the CLF (11.7 percent compared to 8.3 percent), however, nonminority women had lower participation rates in the High Loss areas: 30.1 percent compared to a 34.3 percent *(see Chapter 3 - Tables 4, 7)*.

The three High Loss occupations which had the greatest percentages of female employees in 1980 were:

		All		**Nonminority**		**Minority**	
√	Childcare Workers	97.4%	*(155,785)*	79.6%	*(127,240)*	17.6%	*(28,545)*
√	Housekeepers, Private	96.4%	*(66,531)*	41.0%	*(28,310)*	55.4%	*(28,221)*
√	Maids and Servants	94.6%	*(363,151)*	32.7%	*(125,528)*	61.9%	*(237,623)*

The three High Loss occupations which had the lowest percentages of female employees in 1980 were:

	All		**Nonminority**		**Minority**	
√ Farmers, Owners and Tenants	9.9%	*(114,200)*	9.5%	*(109,811)*	0.4%	*(4,389)*
√ Taxi Drivers	11.5%	*(21,603)*	8.6%	*(16,178)*	2.9%	*(5,425)*
√ Farm Laborers	30.6%	*(917,485)*	21.0%	*(628,749)*	9.6%	*(228,736)*

The three High Loss occupations which had the greatest numbers of female employees in 1980 were:

	All		**Nonminority**		**Minority**	
√ Farm Laborers	917,485	*(30.6%)*	628,749	*(21.0%)*	228,736	*(9.6%)*
√ Compositors and Typesetters	595,412	*(68.6%)*	462,891	*(53.3%)*	132,521	*(2.9%)*
√ Secondary School Teachers	509,283	*(57.0%)*	443,281	*(49.6%)*	66,002	*(7.4%)*

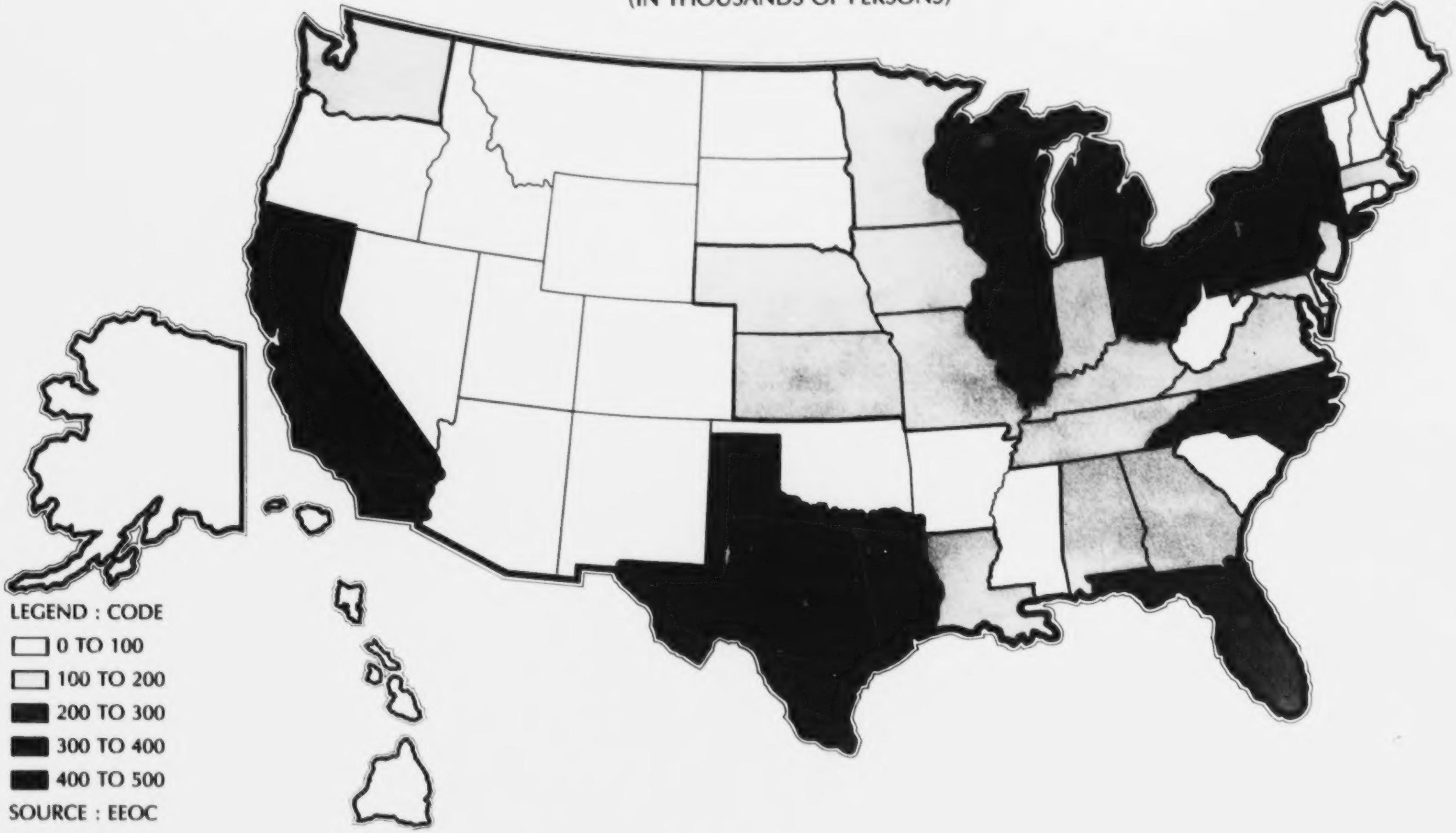
The three High Loss occupations which had the lowest numbers of female employees in 1980 were:

	All		**Nonminority**		**Minority**	
√ Taxi Drivers	21,603	*(11.5%)*	16,178	*(8.6%)*	5,425	*(2.9%)*
√ Housekeepers, Private	66,531	*(96.4%)*	28,319	*(41.0%)*	38,221	*(55.4%)*
√ Farmers, Owners and Tenants	114,200	*(9.9%)*	109,811	*(9.5%)*	4,389	*(0.4%)*

Geographic Distribution

Employment in High Loss occupations was concentrated in several states: California, New York and Texas *(see Figure 3.7)*

HIGH LOSS EMPLOYMENT
(IN THOUSANDS OF PERSONS)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SOURCE : EEOC

FIGURE 3.7

Table 1

U.S. Totals: Ranked High Growth Occupations Projected Growth for 1990

1980 Total Civilian Work Force	1980 Total High Growth	1980 High Growth % Total Work Force	1990 Total High Growth Projection	1990 High Growth Net Gain
104,449,817	41,504,050	39.7%	52,796,577	11,292,527

By Ranked Occupation

Occupation	1980 Total	% Change 1978-1990	1990 Projection	Net Gain
Blue-Collar Worker Supervisors	4,825,429	17.36	5,663,123	837,694
Secretaries	3,999,222	21.03	4,840,258	841,036
Helpers in the Trades	3,537,848	25.04	4,423,725	885,877
Truck Drivers	3,333,783	26.16	4,205,901	872,118
Automotive Mechanics	3,200,945	24.25	3,977,174	776,844
Janitors and Sextons	2,803,715	25.96	3,531,559	727,844
Sales Clerks	2,468,330	21.32	2,994,578	526,248
Elementary School Teachers	2,319,370	21.37	2,815,019	495,649
Bookkeepers, Hand	1,895,473	23.69	2,344,511	449,038
Cashiers	1,875,840	36.35	2,557,708	681,868
General Clerks, Office	1,736,613	23.35	2,142,112	405,449
Typists	1,550,760	26.40	1,960,161	409,401
Waiters and Waitresses	1,506,093	34.56	2.026,599	520,506
Nurse's Aides and Orderlies	1,378,118	54.56	2,130,019	751,901
Nurses, Professional	1,304,850	50.28	1,960,929	656,079
Kitchen Helpers	1,114,900	38.98	1,549,488	434,588
Accountants & Auditors	1,012,857	32.72	1,344,264	331,407
Guards & Doorkeepers	992,763	35.52	1,345,392	352,629
Licensed Practical Nurses	435,176	43.89	626,175	190,999
Food Preparation & Service Workers	211,965	68.84	357,882	145,917
Totals:	41,504,050		52,796,577	11.292,527

Source: Projections for 1990 are from: Max L. Carey, "Occupational Employment Growth through 1990," *Monthly Labor Review* 104 (August 1981), pp. 49-53. 1980 totals for the occupations are from the U.S. Department of Commerce, Bureau of the Census.

Table 2

U.S. Totals: Ranked High Tech Occupations Projected Growth for 1990

1980 Total Civilian Work Force	1980 Total High Tech	1980 High Tech % Total Work Force	1990 Total High Tech Projection	1990 High Tech Net Gain
104,449,817	3,945,632	3%	6,147,117	2,201,485

By Ranked Occupation

Occupation	1980 Total	% Change 1978-1990	1990 Projection	Net Gain
Electrical & Electronic Assemblers	1,699,700	34.24	2,281,677	581,977
Computer Programmers	449,626	73.57	780,416	330,790
Computer Operators	395,547	87.90	743,233	347,686
Electrical Engineers	322,874	51.18	488,121	165,247
Electrical & Electronic Technicians	266,184	45.42	387,085	120,901
Mechanical Engineers	214,332	50.67	322,934	108,602
Industrial Engineers	204,363	34.03	273,908	69,545
Computer Systems Analysts	202,651	107.75	421,007	218,356
Data Processing Machine Mechanics	165,321	147.62	409,368	244,047
Peripheral EDP Equipment Operators	25,034	57.26	39,368	14,334
Totals:	3,945,632		6,147,117	2,201,485

Source: Projections for 1990 are from: Max L. Carey, "Occupational Employment Growth through 1990," *Monthly Labor Review* 104 (August 1981), pp. 49-53. 1980 totals for the occupations are from the U.S. Department of Commerce, Bureau of the Census.

Table 3

U.S. Totals: Ranked High Loss Occupations Projected Loss for 1990

1980 Total Civilian Work Force	1980 Total High Loss	1980 High Loss % Total Work Force	Projection	Net Loss
104,449,817	7,045,465	6%	5,806,514	-1,238,951

By Ranked Occupation

Occupation	1980 Total	Percentage Change 1978-1990	1990 Projection	Net Loss
Farm Laborers	2,994,046	-25.42	2,232,960	-761,086
Farmers, Owners & Tenants	1,158,548	-16.96	962,058	-196,490
Secondary School Teachers	893,624	-12.87	778,615	-115,009
Compositors & Typesetters	868,076	- 1.92	851,409	- 16.677
Maids & Servants, Private	383,888	-15.20	325,537	- 58,351
Teachers, College	329,755	-10.06	296,582	- 33,173
Taxi Drivers	188,593	-12.59	164,849	- 23,744
Child Care Workers, Private	159,915	-15.32	135,416	- 24,499
Housekeepers, Private House	69,020	-14.39	59,088	- 9,932
Totals:	7,045,465		5,806,514	-1,238,951

Source: Projections for 1990 are from: Max L. Carey, "Occupational Employment Growth through 1990," *Monthly Labor Review* 104 (August 1981), pp. 49-53. 1980 totals for the occupation are from the U.S. Department of Commerce, Bureau of the Census.

Table 4

U.S. Total: U.S. Civilian Labor Force by Race, Sex and National Origin

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
Number	104,449,817	85,677,198	18,772,619	10,437,225	5,992,723	1,696,420	546,457	38,594
	9,926,488	49,800,137	10,126,351	5,254,596	3,593,058	908,824	311,862	58,013
	44,523,329	35,877,061	8,646,268	5,182,629	2,399,665	787,596	234,595	41,783
Percent	100.0	82.0	18.0	10.0	5.7	1.6	0.5	0.1
	57.4	47.7	9.7	5.0	3.4	0.9	0.3	0.1
	42.6	34.3	8.3	5.0	2.3	0.8	0.2	0.0

Source: U.S. Department of Commerce, Bureau of the Census.

Table 5

1980 National Participation Rates for the High Growth Occupations by Race, Sex and National Origin

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
Total	41,504,050	33,517,086	7,986,964	4,594,941	2,488,270	645,625	219,534	38,594
	18,640,043	14,864,966	3,775,077	2,050,197	1,343,701	257,348	105,371	18,460
	22,864,007	18,652,120	4,211,887	2,544,744	1,144,569	388,277	114,163	20,134
Percent	100.0	80.0	19.2	11.1	6.0	1.6	0.5	0.1
	44.9	35.8	9.1	4.9	3.2	0.6	0.3	0.0
	55.1	44.9	10.1	6.1	2.8	0.9	0.3	0.0

Source: U.S. Department of Commerce, Bureau of the Census.

Table 6

1980 Participation Rates for the High Tech Occupations by Race, Sex and National Origin

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
Total	3,945,632	3,176,934	768,698	395,010	246,802	106,120	16,213	4,553
	2,519,972	2,097,634	422,338	204,417	138,168	67,889	9,015	2,849
	1,425,660	1,079,300	346,360	190,593	108,634	38,231	7,198	1,704
Percent	100.0	80.5	19.5	10.0	6.3	2.7	0.4	0.1
	63.9	53.2	10.7	5.2	3.5	1.7	0.2	0.1
	36.1	27.4	8.8	4.8	2.8	1.0	0.2	0.0

Source: U.S. Department of Commerce, Bureau of the Census.

Table 7

1980 National Participation Rates for the High Loss Occupations by Race, Sex and National Origin

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
Total	7,045,465	5,360,805	1,684,660	948,065	596,339	90,943	42,211	7,102
	4,100,872	3,239,508	861,364	427,241	360,323	43,208	26,898	3,694
	2,944,593	2,121,297	823,296	520,824	236,016	47,735	15,313	3,408
Percent	100.0	76.1	23.9	13.5	8.5	1.3	0.6	0.1
	58.2	46.0	12.2	6.1	5.1	0.6	0.4	0.1
	41.8	30.1	11.7	7.4	3.3	0.7	0.2	0.0

Source: U.S. Department of Commerce, Bureau of the Census.

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1980 Participation by Occupation

High Growth

* See *Chapter 3-Table 4* for Civilian Labor Force participation statistics and *Chapter 4-Table 1* for High Growth occupational statistics.

Blue-Collar Worker Supervisors

- √ 88 percent of Blue-Collar Worker Supervisors were nonminority: 75.6 percent male and 12.4 percent female.
- √ The participation rate for minority males was roughly equal to their participation rate in the CLF (9.6 percent compared to 9.7 percent).
- √ Females had the greatest disparity between a group's participation rate in this occupation and their participation rate in the CLF.

Secretaries

- √ Nearly 99 percent of all secretaries were women.
- √ Nonminority women had a 2.5 times greater participation rate in this occupation than in the CLF. This was the greatest proportional difference among all groups.
- √ All female minority groups had higher participation rates in this occupation than in the CLF.

Helpers in the Trades

- √ Males had a 1.5 times greater participation rate in this occupation than in the CLF.
- √ All minorities, except Asians, had higher participation rates in this occupation than in the CLF.
- √ The participation rates of both black and Hispanic males were 1.5 times greater than their participation rates in the CLF.

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Truck Drivers

- √ This was one of the most gender-segregated occupations in the High Growth category: 91.8 percent male and 8.2 percent female.
- √ All groups of minority males had higher participation rates in this occupation than in the CLF.
- √ Black, Hispanic, and American Indian males had at least twice the participation rates in this occupation as in the nation's CLF.
- √ Very few women were employed in this occupation.

Automotive Mechanics

- √ Males had a higher participation rate (72.3 percent) in this occupation than in the CLF (57.4 percent).
- √ Minority males, except Asians, had higher participation rates in this occupation (13.8 percent) than in the CLF (9.7 percent).
- √ Minority women had nearly equal participation rates in this occupation and in the CLF.
- √ Nonminority females had a lower participation rate in this occupation (13.8 percent) than in the CLF (9.7 percent).

Janitors and Sextons

- √ This occupation had a gender distribution similar to the CLF.
- √ Nonminority females had a lower participation rate in this occupation (20.4 percent) than in the CLF (34.3 percent).
- √ All minority males and females, except Asians, had higher participation rates in this occupation than in the CLF.

Elementary School Teachers

- √ This occupation was predominately female: 75.4 percent.
- √ All minority female groups had at least the same participation rate in this occupation as in the CLF.
- √ Hispanic males had a lower participation rate in this occupation (0.8 percent) than in the CLF (3.4 percent).

Sales Clerks

- √ Females, particularly nonminority, had a higher participation rate in this occupation than in the CLF.
- √ Black males had a lower participation rate in this occupation (1.8 percent) than in the CLF (5.0 percent).

Bookkeepers, Hand

- √ This occupation was predominately female: almost 90 percent.
- √ Blacks had a lower participation rate (4.3 percent) in this occupation than in the CLF (10.0 percent).

Cashiers
√ 83.5 percent of cashiers were female.
√ Minority females had a higher participation rate in this occupation (15.0 percent) than in the CLF (8.3 percent).
√ Hispanic women had more than double the participation rate in this occupation than in the CLF (4.8 percent compared to 2.3 percent).

General Clerks, Office
√ Females composed 82.1 percent of this occupation.
√ Females had twice the participation rate in this occupation as in the CLF.
√ Nonminority males had a lower participation rate in this occupation (13.7 percent) than in the CLF (47.7 percent).

Typists
√ Almost 88 percent of this occupation's employees were female.
√ Minority women had a higher participation rate in this occupation (20.8 percent) than in the CLF (8.3 percent).
√ Black females had almost 3 times the participation rate in this occupation than in the CLF (13.1 percent compared to 5.0 percent).
√ Nonminority males were the group with the lowest participation rate in this occupation (9.7 percent) compared to their participation in the CLF (47.7 percent).

Waiters and Waitresses
√ Females composed 88 percent of all those working as waiters and waitresses.
√ Black females had a lower participation rate in this occupation (4.0 percent) than in the CLF (5.0 percent).

Nurse's Aides and Orderlies
√ Black women had an approximately five times greater participation rate in this occupation (23.4 percent) than in the CLF (5.0 percent).
√ The nonminority male participation rate in this occupation was one-sixth (7.5 percent) of that in the CLF (47.7 percent).

Nurses, Professional
√ 96 percent of professional nurses were female.
√ All female groups, except Hispanics, had higher participation rates in this occupation than in the CLF.

Kitchen Helpers
√ This occupation was one of the more evenly distributed occupations by gender.
√ Female groups, individually and as an aggregate, had higher participation rates in this occupation than in the CLF.

Accountants and Auditors
√ The gender breakdown of this occupation reflected that of the CLF.
√ Black and Hispanic males and females had lower participation rates in this occupation than in the CLF.

Guards and Doorkeepers

- ✓ Almost 90 percent of guards and doorkeepers were male.
- ✓ Minority males had higher participation rates in this occupation than in the CLF.
- ✓ Black males had a two times greater participation rate in this occupation (11.6 percent) than in the CLF (5.0 pecent).

Licensed Practical Nurses

- ✓ This occupation was dominated by women: nearly 97 percent.
- ✓ Minority women represented about 22 percent of all LPNs.
- ✓ Black women accounted for 17.2 percent of all LPNs. This was more than three times their participation rate in the national CLF (5.0 percent).

Food Preparation and Service Workers

- ✓ 81.1 percent of all those working in this occupation were female.
- ✓ All minority female groups, except blacks, had twice the participation rate in this occupation as in the CLF.
- ✓ Nonminority males had the lowest participation rate (14.5 percent) of all groups compared to that in the CLF (47.7 percent).

High Tech

* See *Chapter 4-Table 2* for High Tech occupational statistics.

Electrical and Electronic Assemblers

- ✓ Nearly equal numbers of men and women worked in this occupation.
- ✓ Minorities, as an aggregate, had a higher participation rate in this occupation (27.6 percent) than in the CLF (18.0 percent).
- ✓ Blacks and Hispanics had the greatest increases in participation when compared to their participation in the CLF.

Computer Programmers

- ✓ Women had a 4.3 percent higher participation rate in this occupation than in the CLF (46.9 percent compared to 42.6 percent).
- ✓ Minorities, as an aggregate, had a 3 percent lower participation rate in this occupation than in the CLF. However, Asians had a higher participation rate (3.8 percent) than in the CLF (1.6 percent). The difference, which resulted in an overall lower participation rate, was found among Hispanics, and black males.

Computer Operators

- ✓ Women had a 16 percent higher participation rate in this occupation (59.1 percent) than in the CLF (42.6 percent).
- ✓ Minorities had a slightly higher participation rate in this occupation (19.9 percent) than in the CLF. The higher participation rate for Asians, in particular, and all minority women, accounted for this increase.
- ✓ Black and Hispanic males had slightly lower participation rates in this occupation than in the CLF.

Electrical Engineers

√ Almost 90 percent of electrical engineers were nonminority.

√ Males made up 95 percent of the electrical engineering work force; 85.7 percent were nonminority males.

√ Asian males had an almost five times greater participation rate in this occupation (4.3 percent) than in the CLF (0.9 percent).

√ Nonminority women had over an eight times lower participation rate in this field (4.1 percent) than in the CLF (34.3 percent).

Electrical and Electronic Technicians

√ 85.4 percent of electrical and electronic technicians were nonminority.

√ Males made up 88.5 percent of this occupation; 76.7 percent were nonminority.

√ Asian males had a three times greater participation rate in this occupation (3.0 percent) than in the CLF (0.9 percent).

√ Nonminority women had an almost four times lower participation rate in this occupation (8.8 percent) than in the CLF (34.3 percent).

Mechanical Engineers

√ 98 percent of all mechanical engineers were male.

√ Nearly 92 percent of mechanical engineers were nonminority.

√ Black women had a 25 times lower participation rate in this occupation (3.0 percent) than in the CLF; nonminority women had a 20 times lower representation, and Hispanic and American Indian women had virtually no participation.

√ All minority males, except Asians, had lower participation rates in this occupation than in the CLF; Asian males had a four times greater participation rate.

Industrial Engineers

√ 90 percent of industrial engineers were male.

√ This engineering field employed the highest percentage of women (9.6 percent).

√ This engineering field employed the lowest percentage of minorities (7.3 percent).

√ Asian males had twice the participation rate in this occupation (1.8 percent) as in the CLF (0.9 percent).

√ Black women had a lower participation rate in this occupation (0.5 percent) than in the CLF (5.0 percent).

Computer Systems Analysts

√ All minority groups, except Asians, had lower participation rates in this occupation than in the CLF.

√ All women, particularly Hispanics, had lower participation rates in this occupation than in the CLF.

Data Processing Machine Mechanics

√ This occupation was predominately male: 95 percent.

√ All minority male groups had slightly higher participation rates in this occupation than in the CLF.

- √ All female groups had nearly an eight times lower participation rate in this occupation than in the CLF.

Peripheral EDP Equipment Operators

- √ This was one of the two High Tech occupations which had a higher percentage of female than male employees.
- √ All women, except American Indians (whose rate remained the same), had higher participation rates in this occupation than in the CLF.
- √ All minority males, except Hispanics and American Indians, had higher participation rates in this occupation than in the CLF.
- √ Nonminority males had a lower participation rate in this occupation than in the CLF.

High Loss

* See *Chapter 4 - Table 3* for High Loss occupational statistics.

Farm Laborers

- √ Females had a lower participation rate in this occupation (30.6 percent) than in the national CLF (42.6 percent).
- √ Minority males had a higher participation rate in this occupation (22.1 percent) than in the CLF (9.7 percent).
- √ Hispanic males had an almost three times higher participation rate in this occupation than in the CLF. Hispanic women had twice the participation rate.

Farmers, Owners and Tenants

- √ 90 percent of those working in this occupation were male.
- √ All minority groups had a lower participation rate in this occupation than in the CLF.

Secondary School Teachers

- √ Females had a higher participation rate in this occupation (57.0 percent) than in the CLF (42.6 percent).
- √ Nearly 50 percent of all secondary school teachers were nonminority females.

Compositors and Typesetters

- √ This occupation's employees were predominately female: almost 70 percent.
- √ All female groups had higher participation rates in this occupation than in the CLF.
- √ Males of all groups had lower participation rates in this occupation than in the CLF.

Maids and Servants

- √ This occupation was almost exclusively female: nearly 95 percent.
- √ Minority women represented nearly 62 percent of all those working in this occupation; a seven times greater participation rate than was found in the CLF.
- √ Black women composed 51 percent of this occupation; a participation rate that was ten times greater than that in the CLF.

Teachers, College

√ Nonminority females had a higher participation rate in this occupation (54.4 percent) than in the CLF (34.3 percent).

√ Black and Hispanic males and females had lower participation rates in this occupation than in the CLF.

Taxi Drivers

√ 88 percent of all taxi drivers were male.

√ Blacks had a four times greater participation rate in this occupation than in the CLF.

Child Care Workers, Private

√ This occupation was filled almost exclusively by women: more than 97 percent.

√ The participation rate for every female group was at least twice of that in the CLF.

Housekeepers, Private

√ This occupation was almost exclusively female: more than 96 percent.

√ Black and Hispanic women had a seven times higher participation rate in this occupation than in the CLF.

Table 1-Page 1

National Overview
1980 Participation Rates for Each High Growth Occupation by Race, Sex and National Origin

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
				Blue-Collar Worker Supervisors				
	4,825,429	4,248,268	577,161	270,054	226,937	57,281	19,650	3,239
Number	4,111,706	3,649,665	462,041	210,272	185,404	47,163	16,528	2,674
	713,723	598,603	115,120	59,782	41,533	10,118	3,122	565
	100.0	88.0	12.0	5.6	4.7	1.2	0.4	0.1
Percent	85.2	75.6	9.6	4.4	3.8	1.0	0.3	0.1
	14.8	12.4	2.4	1.2	0.9	0.2	0.1	0.0
				Secretaries				
	3,999,222	3,559,505	439,717	229,175	151,766	39,595	16,390	2,791
Number	49,249	40,911	8,338	4,316	2,579	1,096	287	60
	3,949,973	3,518,594	431,379	224,859	149,187	38,499	16,103	2,731
	100.0	89.0	11.0	5.7	3.8	1.0	0.4	0.1
Percent	1.2	1.0	0.2	0.1	0.1	0.0	0.0	0.0
	98.8	88.0	10.8	5.6	3.7	1.0	0.4	0.1

Table 1 -Page 2

High Growth

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
Helpers in the Trades								
Number	3,537,848	2,607,428	930,420	554,088	308,670	38,668	25,489	3,505
	2,544,619	1,886,300	658,319	387,317	225,281	24,026	19,150	2,545
	993,229	721,128	272,101	166,771	83,389	14,642	6,339	960
Percent	100.0	73.7	26.3	15.7	8.7	1.1	0.7	0.1
	71.9	53.3	18.6	0.9	6.4	0.7	0.5	0.1
	28.1	20.4	7.7	4.7	2.4	0.4	0.2	0.0
Truck Drivers								
Number	3,333,783	2,561,451	772,332	391,733	330,894	24,216	22,969	2,520
	3,059,780	2,364,909	694,871	364,120	287,434	20,197	20,850	2,270
	274,003	196,542	77,461	27,613	43,460	4,019	2,119	250
Percent	100.0	76.8	23.2	11.8	9.9	0.7	0.7	0.1
	91.8	70.9	20.8	10.9	8.6	0.6	0.6	0.1
	8.2	5.9	2.3	0.8	1.3	0.1	0.1	0.0

Table 1-Page 3

High Growth

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
				Automotive Mechanics				
Number	3,200,945	2,507,754	693,191	358,761	263,502	50,692	16,943	3,293
	2,312,964	1,870,614	442,350	222,890	176,818	28,499	11,987	2,156
	887,981	637,140	250,841	135,871	86,684	22,193	4,956	1,137
Percent	100.0	78.3	21.7	11.2	8.2	1.6	0.5	0.1
	72.3	58.4	13.8	7.0	5.5	0.9	0.4	0.1
	27.7	19.9	7.8	4.2	2.7	0.7	0.2	0.0
				Janitors and Sextons				
Number	2,803,715	1,781,253	1,022,462	684,267	265,966	44,184	24,287	3,758
	1,794,815	1,208,067	586,748	376,129	169,472	23,888	14,923	2,336
	1,008,900	573,186	435,714	308,138	96,494	20,296	9,364	1,422
Percent	100.0	63.5	36.5	24.4	9.5	1.6	0.9	0.1
	64.0	43.1	20.9	13.4	6.0	0.9	0.5	0.1
	36.0	20.4	15.5	11.0	3.4	0.7	0.3	0.1

Table 1 -Page 4

High Growth

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
Elementary School Teachers								
Number	2,319,370	1,969,007	350,363	248,977	66,429	24,078	9,397	1,482
	569,823	497,935	71,888	45,830	17,661	5,627	2,207	563
	1,749,547	1,471,072	278,475	203,147	48,768	18,451	7,190	919
Percent	100.0	84.9	15.1	10.7	2.9	1.0	0.4	0.1
	24.6	21.5	3.1	2.0	0.8	0.2	0.1	0.0
	75.4	63.4	12.0	8.8	2.1	0.8	0.3	0.0
Sales Clerks								
Number	2,468,330	2,155,426	312,904	149,204	117,061	37,306	7,344	1,989
	702,214	604,622	97,592	44,929	38,264	11,788	1,863	748
	1,766,116	1,550,804	215,312	104,275	78,797	25,518	5,481	1,241
Percent	100.0	87.3	12.7	6.0	4.7	1.5	0.3	0.1
	28.4	24.5	4.0	1.8	1.6	0.5	0.1	0.0
	71.6	62.8	8.7	4.2	3.2	1.0	0.2	0.1

Table 1 - Page 5

High Growth

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
Bookkeepers, Hand								
Number	1,895,473	1,706,136	189,337	82,212	65,814	33,341	6,632	1,338
	194,630	161,953	32,677	12,945	11,278	7,370	767	317
	1,700,843	1,544,183	56,660	69,267	54,536	25,971	5,865	1,021
Percent	100.0	90.0	10.0	4.3	3.5	1.8	0.3	0.1
	10.3	8.5	1.7	0.7	0.6	0.4	0.0	0.0
	89.7	81.5	8.3	3.7	2.9	1.4	0.3	0.1
Cashiers								
Number	1,875,840	1,526,995	348,845	187,203	115,050	35,746	8,823	2,023
	310,338	242,249	68,089	31,062	25,686	9,517	1,279	545
	1,565,502	1,284,746	280,756	156,141	89,364	26,229	7,544	1,478
Percent	100.0	81.4	18.6	10.0	6.1	1.9	0.5	0.1
	16.5	12.9	3.6	1.7	1.4	0.5	0.1	0.0
	83.5	68.5	15.0	8.3	4.8	1.4	0.4	0.1

Table 1-Page 6

High Growth

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
				General Clerks, Office				
Number	1,736,613	1,369,751	366,862	220,631	101,255	34,993	8,145	1,838
	311,530	238,017	73,513	41,365	21,763	8,356	1,425	604
	1,425,083	1,131,734	293,349	179,266	79,492	26,637	6,720	1,234
Percent	100.0	78.9	21.1	12.7	5.8	2.0	0.5	0.1
	17.9	13.7	4.2	2.4	1.3	0.5	0.1	0.0
	82.1	65.2	16.9	10.3	4.6	1.5	0.4	0.1
				Typists				
Number	1,550,760	1,188,288	362,472	224,968	89,787	36,899	9,106	1,712
	189,397	149,741	39,656	21,120	11,686	5,342	1,256	252
	1,361,363	1,038,547	322,816	203,848	78,101	31,557	7,850	1,460
Percent	100.0	76.6	23.4	14.5	5.8	2.4	0.6	0.1
	12.2	9.7	2.6	1.4	0.8	0.3	0.1	0.0
	87.8	67.0	20.8	13.1	5.0	2.0	0.5	0.1

Table 1 - Page 7

High Growth

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
Waiters and Waitresses								
Number	1,506,093	1,307,169	198,924	77,662	72,160	39,484	7,829	1,789
	180,165	125,048	55,117	17,530	22,937	13,524	572	554
	1,325,928	1,182,121	143,807	60,132	49,223	25,960	7,257	1,235
Percent	100.0	86.8	13.2	5.2	4.8	2.6	0.5	0.1
	12.0	8.3	3.7	1.2	1.5	0.9	0.0	0.0
	88.0	78.5	9.5	4.0	3.3	1.7	0.5	0.1
Nurse's Aides and Orderlies								
Number	1,378,118	901,206	476,912	372,209	71,580	19,692	11,690	1,741
	168,361	103,172	65,189	49,467	11,148	2,935	1,358	281
	1,209,757	798,034	411,723	322,742	60,432	16,757	10,332	1,460
Percent	100.0	65.4	34.6	27.0	5.2	1.4	0.8	0.1
	12.2	7.5	4.7	3.6	0.8	0.2	0.1	0.0
	87.8	57.9	29.9	23.4	4.4	1.2	0.7	0.1

Table 1-Page 8

High Growth

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
Nurses, Professional								
Number	1,304,850	1,131,833	173,017	96,604	27,907	43,300	3,929	1,277
	55,351	44,965	10,386	5,502	2,644	1,943	187	110
	1,249,499	1,086,868	162,631	91,102	25,263	41,357	3,742	1,167
Percent	100.0	86.7	13.3	7.4	2.1	3.3	0.3	0.1
	4.2	3.4	0.8	0.4	0.2	0.1	0.0	0.0
	95.8	83.3	12.5	7.0	1.9	3.2	0.3	0.1
Kitchen Helpers								
Number	1,114,900	808,396	306,504	159,734	106,059	31,805	7,173	1,733
	513,608	353,891	159,717	69,300	68,699	17,617	3,089	1,012
	601,292	454,505	146,787	90,434	37,360	14,188	4,084	721
Percent	100.0	72.5	27.5	14.3	9.5	2.9	0.6	0.2
	46.1	31.7	14.3	6.2	6.2	1.6	0.3	0.1
	53.9	40.8	13.2	8.1	3.4	1.3	0.4	0.1

Table 1 -Page 9

High Growth

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
Accountants and Auditors								
	1.012.857	888,689	124,168	53,714	31,802	34,820	2,825	1,007
Number	626,558	563,916	62,642	23,174	18,422	19,212	1,272	562
	386,299	324,773	61,526	30,540	13,380	15,608	1,553	445
	100.0	87.7	12.3	5.3	3.1	3.4	0.3	0.1
Percent	61.9	55.7	6.2	2.3	1.8	1.9	0.1	0.1
	38.1	32.1	6.1	3.0	1.3	1.5	0.2	0.0
Guards and Doorkeepers								
	992,763	791,202	201,561	137,448	47,186	8,986	7,050	891
Number	890,073	717,500	172,573	115,631	42,289	7,821	6,066	766
	102,690	73,702	28,988	21,817	4,897	1,165	984	125
	100.0	79.7	20.3	13.8	4.8	0.9	0.7	0.1
Percent	89.7	72.3	17.4	11.6	4.3	0.8	0.6	0.1
	10.3	7.4	2.9	2.2	0.5	0.1	0.1	0.0

Table 1 - Page 10

High Growth

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
Licensed Practical Nurses								
	435,176	333,132	102,044	77,852	15,062	5,897	2,790	443
Number	14,764	10,652	4,112	2,910	734	322	128	18
	420,412	322,480	97,932	74,942	14,328	5,575	2,662	425
	100.0	76.6	23.4	17.9	3.5	1.4	0.6	0.1
Percent	3.4	2.4	0.9	0.7	0.2	0.1	0.0	0.0
	96.6	74.1	22.5	17.2	3.3	1.3	0.6	0.1
Food Preparation and Service Workers—Fast Food Franchises								
	211,965	174,197	37,768	18,445	13,383	4,642	1,073	225
Number	40,098	30,839	9,259	4,388	3,502	1,105	177	87
	171,867	143,358	28,509	14,057	9,881	3,537	896	138
	100.0	82.2	17.8	8.7	6.3	2.2	0.5	0.1
Percent	18.9	14.5	4.4	2.1	1.7	0.5	0.1	0.0
	81.1	67.6	13.4	6.6	4.7	1.7	0.4	0.1

Table 2-Page 1

National Overview

1980 Participation Rates for Each High Tech Occupation by Race, Sex and National Origin

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Wome
Electrical and Electronic Assemblers								
Number	1,699,700	1,229,948	469,752	258,470	167,640	32,815	8,789	2,038
	858,542	629,111	229,431	128,490	84,373	11,578	4,045	945
	841,158	600,837	240,321	129,980	83,267	21,237	4,744	1,093
Percent	100.0	72.4	27.6	15.2	9.9	1.9	0.5	0.1
	50.5	37.0	3.5	7.6	5.0	0.7	0.2	0.1
	49.5	35.3	14.1	7.6	4.9	1.2	0.3	0.1
Computer Programmers								
Number	449,626	382,842	66,784	32,245	15,663	16,942	1,488	446
	238,927	208,941	29,986	12,097	7,376	9,558	680	275
	210,699	173,901	36,798	20,148	8,287	7,384	808	171
Percent	100.0	85.1	14.9	7.2	3.5	3.8	0.3	0.1
	53.1	46.5	6.7	2.7	1.6	2.1	0.2	0.1
	46.9	38.7	8.2	4.5	1.8	1.6	0.2	0.0

Table 2-Page 2

High Tech

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/ind Men Women	Other Men Women
Computer Operators								
	395,547	316,977	78,570	46,067	20,396	9,867	1,779	461
Number	161,936	128,308	33,628	18,393	9,344	5,017	679	195
	233,611	188,669	44,942	27,674	11,052	4,850	1,100	266
	100.0	80.1	19.9	11.6	5.2	2.5	0.4	0.1
Percent	40.9	32.4	8.5	4.7	2.4	1.3	0.2	0.0
	59.1	47.7	11.4	7.0	2.8	1.2	0.3	0.1
Electrical Engineers								
	322,874	290,006	32,868	9,419	7,866	14,511	729	343
Number	306,695	276,662	30,033	7,977	7,187	13,830	715	324
	16,179	13,344	2,835	1,442	679	681	14	19
	100.0	89.8	10.2	2.9	2.4	4.5	0.2	0.1
Percent	95.0	85.7	9.3	2.5	2.2	4.3	0.2	0.1
	5.0	4.1	0.9	0.4	0.2	0.2	0.0	0.0

Table 2-Page 3

High Tech

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
Electrical and Electronic Technicians								
	266,184	227,441	38,743	16,105	11,975	9,239	1,039	385
Number	235,581	204,079	31,502	12,442	9,852	7,974	893	341
	30,603	23,362	7,241	3,663	2,123	1,265	146	44
	100.0	85.4	14.6	6.1	4.5	3.5	0.4	0.1
Percent	88.5	76.7	11.8	4.7	3.7	3.0	0.3	0.1
	11.5	8.8	2.7	1.4	0.8	0.5	0.1	0.0
Mechanical Engineers								
	214,332	196,568	17,764	5,020	4,006	8,041	435	262
Number	209,946	192,818	17,128	4,697	3,915	7,850	409	257
	4,386	3,750	636	323	91	191	26	5
	100.0	91.7	8.3	2.3	1.9	3.8	0.2	0.1
Percent	98.0	90.0	8.0	2.2	1.8	3.7	0.2	0.1
	2.0	1.7	0.3	0.2	0.0	0.1	0.0	0.0

Table 2-Page 4

High Tech

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
Industrial Engineers								
Number	204,363	189,484	14,879	5,710	4,409	4,027	504	229
	184,668	172,104	12,564	4,594	3,742	3,626	403	199
	19,695	17,380	2,315	1,116	667	401	101	30
Percent	100.0	92.7	7.3	2.8	2.2	2.0	0.2	0.1
	90.4	84.2	6.1	2.2	1.8	1.8	0.2	0.1
	9.6	8.5	1.1	0.5	0.3	0.2	0.0	0.0
Computer Systems Analysts								
Number	202,651	180,473	22,178	9,404	4,803	7,207	539	225
	157,140	141,521	15,619	5,999	3,641	5,435	369	175
	45,511	38,952	6,559	3,405	1,162	1,772	170	50
Percent	100.0	89.1	10.9	4.6	2.4	3.6	0.3	0.1
	77.5	69.8	7.7	3.0	1.8	2.7	0.2	0.1
	22.5	19.2	3.2	1.7	0.6	0.9	0.1	0.0

Table 2-Page 5

High Tech

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
Data Processing Machine Mechanics								
	165,321	143,306	22,015	9,396	8,728	2,920	818	153
Number	156,944	136,691	20,253	8,422	8,170	2,752	771	138
	8,377	6,615	1,762	974	558	168	47	15
	100.0	86.7	13.3	5.7	5.3	1.8	0.5	0.1
Percent	94.9	82.7	12.3	5.1	4.9	1.7	0.5	0.1
	5.1	4.0	1.1	0.6	0.3	0.1	0.0	0.0
Peripheral EDP Equipment Operators								
	25,034	19,889	5,145	3,174	1,316	551	93	11
Number	9,593	7,399	2,194	1,306	568	269	51	0
	15,441	12,490	2,951	1,868	748	282	42	11
	100.0	79.4	20.6	12.7	5.3	2.2	0.4	0.0
Percent	38.3	29.6	8.8	5.2	2.3	1.1	0.2	0.0
	61.7	49.9	11.8	7.5	3.0	1.1	0.2	0.0

Table 3-Page 1

National Overview
1980 Participation Rates for Each High Loss Occupation by Race, Sex and National Origin

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
				Farm Laborers				
	2,994,046	2,044,240	949,806	453,129	428,501	39,136	25,526	3,514
Number	2,076,561	1,415,491	661,070	314,190	301,766	23,235	19,529	2,350
	917,485	628,749	228,736	138,939	126,735	15,901	5,997	1,164
	100.0	68.3	31.7	15.1	14.3	1.3	0.9	0.1
Percent	69.4	47.3	22.1	10.5	10.1	0.8	0.7	0.1
	30.6	21.0	9.6	4.6	4.2	0.5	0.2	0.0
				Farmers, Owners and Tenants				
	1,158,548	1,120,651	37,897	16,576	12,133	5,733	3,189	266
Number	1,044,348	1,010,840	33,508	14,950	10,813	4,782	2,715	248
	114,200	109,811	4,389	1,626	1,320	951	474	18
	100.0	96.7	3.3	1.4	1.0	0.5	0.3	0.0
Percent	90.1	87.3	2.9	1.3	0.9	0.4	0.2	0.0
	9.9	9.5	0.4	0.1	0.1	0.1	0.0	0.0

Table 3-Page 2

High Loss

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
				Secondary School Teachers				
	893,624	791,842	101,782	68,060	22,186	7,466	3,461	609
Number	384,341	348,561	35,780	21,444	9,407	3,132	1,547	250
	509,283	443,281	66,002	46,616	12,779	4,334	1,914	359
	100.0	88.6	11.4	7.6	2.5	0.8	0.4	0.1
Percent	43.0	39.0	4.0	2.4	1.1	0.4	0.2	0.0
	57.0	49.6	7.4	5.2	1.4	0.5	0.2	0.0
				Compositors and Typesetters				
	868,076	692,429	175,647	101,216	48,299	21,609	3,622	901
Number	272,664	229,538	43,126	21,639	14,709	5,460	1,079	239
	595,412	462,891	132,521	79,577	33,590	16,149	2,543	662
	100.0	79.8	20.2	11.7	5.6	2.5	0.4	0.1
Percent	31.4	26.4	5.0	2.5	1.7	0.6	0.1	0.0
	68.6	53.3	15.3	9.2	3.9	1.9	0.3	0.1

Table 3-Page 3

High Loss

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
				Maids and Servants, Private				
Number	383,888	135,761	248,127	203,551	37,140	4,721	2,077	638
	20,737	10,233	10,504	7,689	2,062	540	162	51
	363,151	125,528	237,623	195,862	35,078	4,181	1,915	587
Percent	100.0	35.4	64.6	53.0	9.7	1.2	0.5	0.2
	5.4	2.7	2.7	2.0	0.5	0.1	0.0	0.0
	94.6	32.7	61.9	51.0	9.1	1.1	0.5	0.2
				Teachers, College				
Number	329,755	291,807	37,948	20,715	9,885	5,485	1,561	302
	128,612	112,498	16,114	7,993	4,655	2,658	671	137
	201,143	179,309	21,834	12,722	5,230	2,827	890	165
Percent	100.0	88.5	11.5	6.3	3.0	1.7	0.5	0.1
	39.0	34.1	4.9	2.4	1.4	0.8	0.2	0.0
	61.0	54.4	6.6	3.9	1.6	0.9	0.3	0.1

Table 3-Page 4

High Loss

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
				Taxi Drivers				
	188,593	124,155	64,438	41,846	17,355	3,368	1,460	409
Number	166,990	107,977	59,013	37,910	16,351	3,210	1,147	395
	21,603	16,178	5,425	3,936	1,004	158	313	14
	100.0	65.8	34.2	22.2	9.2	1.8	0.8	0.2
Percent	88.5	57.3	31.3	20.1	8.7	1.7	0.6	0.2
	11.5	8.6	2.9	2.1	0.5	0.1	0.2	0.0
				Child Care Workers, Private				
	159,915	130,494	29,421	17,386	9,018	1,797	920	300
Number	4,130	3,254	876	557	208	74	28	9
	155,785	127,240	28,545	16,829	8,810	1,723	892	291
	100.0	81.6	18.4	10.9	5.6	1.1	0.6	0.2
Percent	2.6	2.0	0.5	0.3	0.1	0.0	0.0	0.0
	97.4	79.6	17.6	10.5	5.5	1.1	0.6	0.2

Table 3-Page 5

High Loss

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
Housekeepers, Private House								
Number	69,020	29,426	39,594	25,586	11,822	1,628	395	163
	2,489	1,116	1,373	869	352	117	20	15
	66,531	28,310	38,221	24,717	11,470	1,511	375	148
Percent	100.0	42.6	57.4	37.1	17.1	2.4	0.6	0.2
	3.6	1.6	2.0	1.3	0.5	0.2	0.0	0.0
	96.4	41.0	55.4	35.8	16.6	2.2	0.5	0.2

5

This chapter contains an analysis of 1980 employment in the five most populous states: California, New York, Texas, Illinois, and Pennsylvania. Each state section includes the following analyses:

- √ State Civilian Labor Force
- √ Minority and Female Participation
- √ High Growth, High Tech, and High Loss Participation
- √ Most Populous Occupations: High Growth, High Tech, and High Loss

Table Index

A set of the following tables is included for each of the five states:

Tables 1-3 provide complete state information on the number of people employed in each of the twenty designated High Growth occupations, the ten designated High Tech occupations and the nine designated High Loss occupations.

Table 4 provides a breakdown of the total employed 1980 civilian labor force by race, sex and national origin for each state.

Table 4.5 provides the national breakdown of the total 1980 civilian labor force by race, sex and national origin.

Tables 5, 7, 9 provide aggregate High Growth, High Tech and High Loss categories for each state broken down by race, sex and national origin.

Tables 6, 8, 10 break down High Growth, High Tech and High Loss occupations for each state by race, sex and national origin.

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How to Calculate Predicted 1990 Net Gains and Losses

The following three tables are provided for calculating net gains and losses in each state's High Growth, High Tech, and High Loss occupations. These figures can be obtained by multiplying the 1980 in-state total employed in each occupation *(see Tables 1, 2, and 3 for each state)* by the 1990 projected rate of change.

For example: California Blue-Collar Worker Supervisors

1980 Employment	x	1990 Projected Rate of Change	=	1990 Net Gain
521,559	x	17.36%	=	90,243

High Growth

Occupation	**Projected Rate of Change 1990**
Blue-Collar Worker Supervisors	17.36%
Secretaries	21.03%
Helpers in the Trades	25.04%
Truck Drivers	26.16%
Automotive Mechanics	24.25%
Janitors and Sextons	25.96%
Sales Clerks	21.32%
Elementary School Teachers	21.37%
Bookkeepers, Hand	23.69%
Cashiers	36.35%
General Clerks, Office	23.35%
Typists	26.40%
Waiters and Waitresses	34.56%
Nurse's Aides and Orderlies	54.56%
Nurses, Professional	50.28%
Kitchen Helpers	38.98%
Accountants and Auditors	32.72%
Guards and Doorkeepers	35.52%
Licensed Practical Nurses	43.89%
Food Preparation and Service Workers—Fast Food Franchises	68.84%

Source: Carey, Department of Labor, Bureau of Labor Statistics, *Monthly Labor Review* (August 1981) pp. 42-55.

High Tech

Occupation	Projected Rate of Change 1990
Electrical and Electronic Assemblers	34.24%
Computer Programmers	73.57%
Computer Operators	87.90%
Electrical Engineers	51.18%
Electrical and Electronic Technicians	45.42%
Mechanical Engineers	50.67%
Industrial Engineers	34.03%
Computer Systems Analysts	107.75%
Data Processing Machine Mechanics	147.62%
Peripheral EDP Equipment Operators	57.26%

Source: Carey, Department of Labor, Bureau of Labor Statistics, *Monthly Labor Review* (August 1981) pp. 42-45.

High Loss

Occupation	Projected Rate of Change 1990
Farm Laborers	–25.42%
Farmers, Owners and Tenants	-16.96%
Secondary School Teachers	-12.87%
Compositors and Typesetters	-1.92%
Maids and Servants, Private	-15.20%
Teachers, College	-10.06%
Taxi Drivers	-12.59%
Child Care Workers, Private	-15.32%
Housekeepers, Private House	-14.39%

Source: Carey, Department of Labor, Bureau of Labor Statistics, *Monthly Labor Review* (August 1981) pp. 42-45.

California

Total Employed Civilian Labor Force In 1980

Refer to Tables 4 and 4.5.

- √ California's Civilian Labor Force* constituted 10.8 percent of the national CLF.
- √ The minority participation rate in California's CLF (30.1 percent) was 1.5 times greater than their national participation rate (17.8 percent).
- √ Blacks' participation rate in California's CLF was lower (6.5 percent) than their national participation rate (9.9 percent).
- √ Hispanics and Asians had a three times greater participation rate in California's CLF than in the national CLF: Hispanics, 17.2 percent compared to 5.7 percent; Asians, 5.5 percent compared to 1.6 percent.

*The civilian labor force is composed of all persons between 16 and 65 years of age who are currently employed or looking for a job.

**It should again be noted that the data tape used for the analysis of national trends was based upon a total civilian work force figure of 104,449,817 employees. This figure includes the unemployed. The tape developed by the Program Services Division for the state data did not include the unemployed and uses the total civilian labor force figure of 103,718,076.

California's High Growth Occupations: 1980 Minority and Female Participation

Refer to Tables 1, 4 and 5.

- √ In 1980, 10 percent of the nation's High Growth work force was employed in California.
- √ 38.4 percent of the state's CLF worked in High Growth occupations. This was somewhat lower than the national High Growth participation rate (39.7 percent).
- √ Over 500,000 persons were employed as blue-collar supervisors in California.
- √ Minorities had a slightly higher participation rate in California's High Growth occupations (32.9 percent) than in the state CLF (30.1 percent).
- √ The female participation rate in California'a High Growth category was 11 percent higher than in the state CLF.
- √ Hispanics had a higher participation rate in California's High Growth occupations (19.0 percent) than in the state CLF (17.2 percent).

California's High Tech Occupations: 1980 Minority and Female Participation

Refer to Tables 2, 4 and 7.

- In 1980, the largest share of the nation's High Tech labor force was employed in California: 12 percent.
- 4.3 percent of the state's CLF was employed in High Tech occupations, a higher proportion than the national percentage (3.4 percent).
- The female participation rate in California's High Tech occupations (33.4 percent) was lower than that in the state CLF (42.7 percent).
- Nonminority females had a lower participation rate in California's High Tech occupations (18.2 percent) than in the state CLF (29.8 percent). This was the greatest difference in participation of any group.
- Asians had a higher participation rate in the state's High Tech occupations (9.3 percent) than in the state CLF (5.5 percent).

California's High Loss Occupations: 1980 Minority and Female Participation

Refer to Tables 3, 4 and 9.

- 10 percent of the nation's High Loss work force was employed in California.
- 6.2 percent of the state CLF was employed in High Loss occupations. In contrast, High Loss occupations represented 6.7 percent of the national CLF.
- The female participation in California's High Loss occupations (44.1 percent) was higher than in the state CLF (42.7 percent).
- Nonminority males had a lower participation rate in California's High Loss occupations (29.0 percent) than in the state CLF (40.1 percent). This was the lowest participation of any group compared to their portion of the state CLF.
- Hispanics had a higher participation rate in California's High Loss occupations (35.2 percent) than in the state CLF (17.2 percent). This was the highest rate of any group compared to their participation in the state CLF.

High Growth: Top Five Occupations Minority and Female Participation in 1980

Refer to Tables 4 and 6.

Blue-Collar Worker Supervisors

- 83 percent of all those working in this occupation were male.
- Both black and Hispanic women had a three times lower participation rate in this occupation that in the state CLF.
- Minority males had a higher participation rate in this occupation (23.9 percent) than in the state CLF (17.2 percent).

- ✓ Nonminority males had a higher participation rate in this occupation (64.0 percent) than in the state CLF (40.1 percent).

Secretaries

- ✓ 98.5 percent of all those working in this occupation were women.
- ✓ Nearly 80 percent of all secretaries were nonminority females.
- ✓ Nonminority males constituted only 1.2 percent of all secretaries.

Truck Drivers

- ✓ 88 percent of all those working in this occupation were male.
- ✓ All groups of females (except Hispanics) had lower participation rates in this occupation than in the state CLF.
- ✓ Nonminority women had a lower participation rate in this occupation than (3.8 percent) in the state CLF (29.8 percent). This difference in rates of participation was the greatest of all groups.

Automotive Mechanics

- ✓ 73 percent of all those working in this occupation were male.
- ✓ Nonminority females had a lower participation rate (10.8 percent) in this occupation than in the state CLF (29.8 percent).
- ✓ Black females had a slightly lower participation rate (2.2 percent) than in the state CLF (3.2 percent).
- ✓ Hispanic and Asian women had higher participation rates in this occupation than in the state CLF: Hispanics, 10.4 percent versus 6.8 percent in the state CLF; Asians, 2.9 percent versus 2.6 percent in the state CLF.
- ✓ Minority males had a higher participation rate in this occupation (29.6 percent) than in the state CLF (17.2 percent). Nonminority males had a slightly higher participation rate in this occupation (43.3 percent) than in the state CLF (40.1 percent).

Helpers in the Trades

- ✓ Males composed 73 percent of all those working as helpers in the trades.
- ✓ Nonminority women had a lower participation rate (12.6 percent) than in the state CLF (29.8 percent). Black (2.1 percent compared to 3.2 percent), Asian (1.9 compared to 2.6) and American Indian women (0.2 compared to 0.3) also had lower participation rates.
- ✓ Hispanic women had a higher participation rate in this occupation (9.9 percent) than in the state CLF (6.8 percent).
- ✓ Minority males had a higher participation rate (35.4 percent) than in the state CLF (17.2 percent). This was especially true for Hispanic males (25.4 percent compared to 10.4 percent).
- ✓ Nonminority males had a lower participation rate in this occupation (37.7 percent) than in the state CLF (40.1 percent).

High Tech: Top Three Occupations Minority and Female Participation in 1980

Refer to Tables 4 and 8.

Electrical and Electronic Assemblers

- √ Women constituted a slightly larger percentage (48.4 percent) of all those employed in this occupation than of the state CLF (42.7 percent).
- √ The Hispanic women's participation in this occupation (19.4 percent) was three times their participation in the state CLF (6.8 percent).
- √ Nonminority women had a lower participation rate in this occupation (18.9 percent) than in the state CLF (29.8 percent)
- √ All groups of minority males had higher participation rates in this occupation than in the state CLF.
- √ Nonminority males had lower participation rates (21.8 percent) in this occupation than in California's CLF (40.1 percent).

Computer Programmers

- √ The participation rates of males (54.9 percent) and females (45.1 percent) in this occupation was roughly equivalent to those in California's CLF (for males: 57.3 percent; for females: 42.7).
- √ Minorities, males in particular, had lower participation rates in this occupation than in the state CLF. Minorities held 24.5 percent of these jobs; a 5.6 percent lower participation rate than in California's CLF.
- √ Hispanics had the lowest participation rate of all groups in this occupation when compared to their participation rate in the state CLF. Hispanic males, in particular, had a participation rate (3.2 percent) that was three times lower than that in the state CLF (10.4 percent).
- √ Asians were 11.2 percent of the state's computer programmers. This participation rate was two times greater than their participation in the state CLF (5.5 percent).
- √ Nonminorities had a higher participation rate in this occupation (75.5 percent) than in the state CLF (69.9 percent).

Electrical Engineers

- √ Nearly 94 percent of all those working in this occupation were male.
- √ The participation rate of Hispanics was (5.0 percent) smaller than their participation rate in the state CLF (17.2 percent).
- √ Asian males had a 3.5 times greater participation rate in this occupation (10.4 percent) than in the state CLF (2.9 percent).

Table 1

State Totals: By Occupation
High Growth

California

1980 State Civilian Work Force	1980 State Total: High Growth	% State Total: High Growth
11,309,890	4,344,220	38.4%

1980 National High Growth Work Force	State's Share of the National High Growth Work Force
41,504,050	10%

By Ranked Occupation

	Occupation	1980 Total
1.	Blue-Collar Worker Supervisors	521,559
2.	Secretaries	399,214
3.	Truck Drivers	374,915
4.	Automotive Mechanics	332,451
5.	Helpers in the Trades	297,069
6.	Sales Clerks	288,263
7.	Janitors and Sextons	259,425
8.	Bookkeepers, Hand	226,385
9.	Elementary School Teachers	215,035
10.	General Clerks, Office	212,806
11.	Cashiers	197,406
12.	Typists	189,091
13.	Waiters and Waitresses	165,343
14.	Nurses, Professional	133,328
15.	Accountants and Auditors	126,961
16.	Kitchen Helpers	119,338
17.	Nurse's Aides and Orderlies	116,741
18.	Guards and Doorkeepers	102,653
19.	Licensed Practical Nurses	38,304
20.	Food Preparation and Service Workers	27,933
	Total	4,344,220

Table 2

State Totals: By Occupation
High Tech

California

1980 State Civilian Work Force	1980 State Total: High Tech	% State Total: High Tech
11,309,890	487,707	4%

1980 National High Growth Work Force	State's Share of the National High Growth Work Force
3,945,632	12%

By Ranked Occupation

	Occupation	1980 Total
1.	Electrical and Electronic Assemblers	170,609
2.	Computer Programmers	60,883
3.	Electrical Engineers	58,286
4.	Computer Operators	48,855
5.	Electrical and Electronic Technicians	48,288
6.	Computer Systems Analyst	29,907
7.	Industrial Engineers	25,740
8.	Mechanical Engineers	23,386
9.	Data Processing Machine Mechanics	19,929
10.	Peripheral EDP Equipment Operators	1,824
	Total	487,707

Table 3

State Totals: By Occupation
High Loss

California

1980 State Civilian Work Force	1980 State Total: High Loss	% State Total: High Loss
11,309,890	707,264	6.2%
1980 National High Growth Work Force		**State's Share of the National High Growth Work Force**
7,045,465		10%

By Ranked Occupation

	Occupation	1980 Total
1.	Farm Laborers	355,046
2.	Compositors and Typesetters	109,103
3.	Secondary School Teachers	75,378
4.	Maids and Servants, Private	41,292
5.	Farmers, Owners and Tenants	39,280
6.	Teachers, College	39,279
7.	Taxi Drivers	19,576
8.	Child Care Workers, Private	16,856
9.	Housekeepers, Private House	11,454
	Total	707,264

Table 4

Total Employed Civilian Labor Force in 1980

California

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
	11,309,890	7,906,152	3,403,738	736,754	1,941,045	616,966	84,640	24,333
Number	6,483,724	4,536,827	1,946,897	379,976	1,177,574	327,671	47,462	14,214
	4,826,166	3,369,325	1,456,841	356,778	763,471	289,295	37,178	10,119
	100.0	69.9	30.1	6.5	17.2	5.5	0.7	0.2
Percent	57.3	40.1	17.2	3.4	10.4	2.9	0.4	0.1
	42.7	29.8	12.9	3.2	6.8	2.6	0.3	0.1

Table 4.5

Total Employed Civilian Labor Force in 1980

National

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
	103,718,076	85,258,303	18,459,773	10,219,477	5,918,947	1,682,924	539,811	98,614
Number	59,625,553	49,633,442	9,992,111	5,161,234	3,561,059	903,321	308,962	57,535
	44,092,523	35,624,861	8,467,662	5,058,243	2,357,888	779,603	203,849	41,079
	100.0	82.2	17.8	9.9	5.7	1.6	0.5	0.1
Percent	57.5	47.9	9.6	6.0	3.4	0.9	0.3	0.1
	42.5	34.3	8.2	4.9	2.3	0.8	0.2	0.0

Table 5

State Aggregate for Minorities and Women

California

1980 Participation Rates for the High Growth Occupations by Race, Sex and National Origin

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
Number	4,344,220	2,913,618	1,430,602	319,163	826,485	241,255	33,758	9,941
	1,995,856	1,264,174	731,682	140,700	471,408	98,847	15,909	4,818
	2,348,364	1,649,444	698,920	178,463	355,077	142,408	17,849	5,123
Percent	100.0	67.1	32.9	7.3	19.0	5.6	0.8	0.2
	45.9	29.1	16.8	3.2	10.9	2.3	0.4	0.1
	54.1	38.0	16.1	4.1	8.2	3.3	0.4	0.1

Table 6-Page 1

California

1980 Participation Rates for Each High Growth Occupation by Race, Sex and National Origin

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
Blue-Collar Worker Supervisors								
Number	521,559	397,013	124,546	23,881	74,691	21,231	3,824	919
	434,279	333,686	100,593	18,691	60,683	17,391	3,098	730
	87,280	63,327	23,953	5,190	14,008	3,840	726	189
Percent	100.0	76.1	23.9	4.6	14.3	4.1	0.7	0.2
	83.3	64.0	19.3	3.6	11.6	3.3	0.6	0.1
	16.7	12.1	4.6	1.0	2.7	0.7	0.1	0.0
Secretaries								
Number	399,214	321,611	77,603	19,172	39,872	15,230	2,576	753
	6,169	4,687	1,482	440	633	345	57	7
	393,045	316,924	76,121	18,732	39,239	14,885	2,519	746
Percent	100.0	80.6	19.4	4.8	10.0	3.8	0.6	0.2
	1.5	1.2	0.4	0.1	0.2	0.1	0.0	0.0
	98.5	79.4	19.1	4.7	9.8	3.7	0.6	0.2

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California

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
				Truck Drivers				
Number	374,915	190,656	184,259	19,247	150,832	9,494	3,759	927
	331,545	176,544	155,001	18,355	124,630	7,785	3,446	785
	43,370	14,112	29,258	892	26,202	1,709	313	142
Percent	100.0	50.9	49.1	5.1	40.2	2.5	1.0	0.2
	88.4	47.1	41.3	4.9	33.2	2.1	0.9	0.2
	11.6	3.8	7.8	0.2	7.0	0.5	0.1	0.0
				Automotive Mechanics				
Number	332,451	181,493	150,958	21,745	103,640	21,910	2,728	935
	244,141	145,689	98,452	14,265	69,215	12,367	1,968	637
	88,310	35,804	52,506	7,480	34,425	9,543	760	298
Percent	100.0	54.6	45.4	6.5	31.2	6.6	0.8	0.3
	73.4	43.8	29.6	4.3	20.8	3.7	0.6	0.2
	26.6	10.8	15.8	2.2	10.4	2.9	0.2	0.1

Table 6-Page 3

California

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
Helpers in the Trades								
	297,069	149,572	147,497	24,198	105,037	14,539	2,831	892
Number	217,099	112,005	105,094	18,053	75,503	8,812	2,103	623
	79,970	37,567	42,403	6,145	29,534	5,727	728	269
	100.0	50.3	49.7	8.1	35.4	4.9	1.0	0.3
Percent	73.1	37.7	35.4	6.1	25.4	3.0	0.7	0.2
	26.9	12.6	14.3	2.1	9.9	1.9	0.2	0.1
Sales Clerks								
	288,263	224,855	63,408	14,887	33,737	12,851	1,410	523
Number	93,249	72,044	21,205	5,425	10,829	4,373	389	189
	195,014	152,811	42,203	9,462	22,908	8,478	1,021	334
	100.0	78.0	22.0	5.2	11.7	4.5	0.5	0.2
Percent	32.3	25.0	7.4	1.9	3.8	1.5	0.1	0.1
	67.7	53.0	14.6	3.3	7.9	2.9	0.4	0.1

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California

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
Janitors and Sextons								
Number	259,425	124,743	134,682	39,428	77,154	14,769	2,593	738
	179,157	89,559	89,598	26,683	51,399	9,323	1,655	538
	80,268	35,184	45,084	12,745	25,755	5,446	938	200
Percent	100.0	48.1	51.9	15.2	29.7	5.7	1.0	0.3
	69.1	34.5	34.5	10.3	19.8	3.6	0.6	0.2
	30.9	13.6	17.4	4.9	9.9	2.1	0.4	0.1
Bookkeepers, Hand								
Number	226,385	182,597	43,788	9,009	17,977	14,983	1,431	388
	24,966	17,225	7,741	1,524	2,529	3,464	127	97
	201,419	165,372	36,047	7,485	15,448	11,519	1,304	291
Percent	100.0	80.7	19.3	4.0	7.9	6.6	0.6	0.2
	11.0	7.6	3.4	0.7	1.1	1.5	0.1	0.0
	89.0	73.0	15.9	3.3	6.8	5.1	0.6	0.1

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California

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
				Elementary School Teachers				
Number	215,035	173,506	41,529	14,913	16,561	8,533	1,275	247
	58,324	48,299	10,025	3,010	4,598	1,938	383	96
	156,711	125,207	31,504	11,903	11,963	6,595	892	151
Percent	100.0	80.7	19.3	6.9	7.7	4.0	0.6	0.1
	27.1	22.5	4.7	1.4	2.1	0.9	0.2	0.0
	72.9	58.2	14.7	5.5	5.6	3.1	0.4	0.1
				General Clerks, Office				
Number	212,806	139,643	73,163	23,386	32,428	15,396	1,451	502
	37,619	23,384	14,235	4,263	5,860	3,767	242	103
	175,187	116,259	58,928	19,123	26,568	11,629	1,209	399
Percent	100.0	65.6	34.4	11.0	15.2	7.2	0.7	0.2
	17.7	11.0	6.7	2.0	2.8	1.8	0.1	0.0
	82.3	54.6	27.7	9.0	12.5	5.5	0.6	0.2

Table 6-Page 6

California

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
Cashiers								
Number	197,406	135,871	61,535	13,992	32,378	13,034	1,555	576
	49,261	32,149	17,112	4,069	8,164	4,366	300	213
	148,145	103,722	44,423	9,923	24,214	8,668	1,255	363
Percent	100.0	68.8	31.2	7.1	16.4	6.6	0.8	0.3
	25.0	16.3	8.7	2.1	4.1	2.2	0.2	0.1
	75.0	52.5	22.5	5.0	12.3	4.4	0.6	0.2
Typists								
Number	189,091	117,761	71,330	23,059	28,660	17,676	1,420	515
	25,589	16,993	8,596	2,541	3,319	2,480	214	42
	163,502	100,768	62,734	20,518	25,341	15,196	1,206	473
Percent	100.0	62.3	37.7	12.2	15.2	9.3	0.8	0.3
	13.5	9.0	4.5	1.3	1.8	1.3	0.1	0.0
	86.5	53.3	33.2	10.9	13.4	8.0	0.6	0.3

Table 6-Page 7

California

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
Waiters and Waitresses								
	165,343	127,945	37,398	4,264	20,894	10,465	1,345	430
Number	29,236	17,541	11,695	1,087	6,689	3,727	71	121
	136,107	110,404	25,703	3,177	14,205	6,738	1,274	309
	100.0	77.4	22.6	2.6	12.6	6.3	0.8	0.3
Percent	17.7	10.6	7.1	0.7	4.0	2.3	0.0	0.
	82.3	66.8	15.5	1.9	8.6	4.1	0.8	0.2
Nurses, Professional								
	133,328	102,831	30,497	9,051	7,344	12,922	878	302
Number	7,131	5,210	1,921	593	683	564	60	21
	126,197	97,621	28,576	8,458	6,661	12,358	818	281
	100.0	77.1	22.9	6.8	5.5	9.7	0.7	0.2
Percent	5.3	3.9	1.4	0.4	0.5	0.4	0.0	0.0
	94.7	73.2	21.4	6.3	5.0	9.3	0.6	0.2

Table 6-Page 8

California

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
Accountants and Auditors								
Number	126,961	96,231	30,730	6,196	8,812	14,873	579	270
	69,936	54,819	15,117	2,379	4,688	7,718	188	144
	57,025	41,412	15,613	3,817	4,124	7,155	391	126
Percent	100.0	75.8	24.2	4.9	6.9	11.7	0.5	0.2
	55.1	43.2	11.9	1.9	3.7	6.1	0.1	0.1
	44.9	32.6	12.3	3.0	3.2	5.6	0.3	0.1
Kitchen Helpers								
Number	119,338	63,102	56,236	8,443	36,743	9,666	1,016	368
	71,614	32,919	38,695	3,968	27,578	6,360	546	243
	47,724	30,183	17,541	4,475	9,165	3,306	470	125
Percent	100.0	52.9	47.1	7.1	30.8	8.1	0.9	0.3
	60.0	27.6	32.4	3.3	23.1	5.3	0.5	0.2
	40.0	25.3	14.7	3.7	7.7	2.8	0.4	0.1

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California

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
				Nurses' Aides and Orderlies				
Number	116,741	65,359	51,382	22,793	19,916	6,805	1,513	355
	17,367	9,885	7,482	3,203	3,051	999	165	64
	99,374	55,474	43,900	19,590	16,865	5,806	1,348	291
Percent	100.0	56.0	44.0	19.5	17.1	5.8	1.3	0.3
	14.9	8.5	6.4	2.7	2.6	0.9	0.1	0.1
	85.1	47.5	37.6	16.8	14.4	5.0	1.2	0.2
				Guards and Doorkeepers				
Number	102,653	73,831	28,822	13,209	11,446	3,012	984	171
	90,498	65,729	24,769	11,219	9,986	2,623	808	133
	12,155	8,102	4,053	1,990	1,460	389	176	38
Percent	100.0	71.9	28.1	12.9	11.2	2.9	1.0	0.2
	88.2	64.0	24.1	10.9	9.7	2.6	0.8	0.2
	11.8	7.9	3.9	1.9	1.4	0.4	0.2	0.0

Table 6-Page 10

California

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
Licensed Practical Nurses								
Number	38,304	24,397	13,907	6,859	3,802	2,749	397	100
	2,561	1,685	876	419	246	146	49	16
	35,743	22,712	13,031	6,440	3,556	2,603	348	84
Percent	100.0	63.7	36.3	17.9	9.9	7.2	1.0	0.3
	6.7	4.4	2.3	1.1	0.6	0.4	0.1	0.0
	93.3	59.3	34.0	16.8	9.3	6.8	0.9	0.2
Food Preparation and Service Workers—Fast Food Franchises								
Number	27,933	20,601	7,332	1,431	4,561	1,117	193	30
	6,115	4,122	1,993	513	1,125	299	40	16
	21,818	16,479	5,339	918	3,436	818	153	14
Percent	100.0	73.8	26.2	5.1	16.3	4.0	0.7	0.1
	21.9	14.8	7.1	1.8	4.0	1.1	0.1	0.1
	78.1	59.0	19.1	3.3	12.3	2.9	0.5	0.1

Table 7

State Aggregate for Minorities and Women — California

1980 Participation Rates for the High Tech Occupations by Race, Sex and National Origin

	Total Men Women	**Nonminority Men Women**	**Minority Men Women**	**Black Men Women**	**Hispanic Men Women**	**Asian Men Women**	**Am/Ind Men Women**	**Other Men Women**
Number	487,707	310,514	177,193	31,222	96,089	45,493	3,061	1,328
	324,974	221,955	103,019	17,397	54,592	28,418	1,756	856
	162,733	88,559	74,174	13,825	41,497	17,075	1,305	472
Percent	100.0	63.7	36.3	6.4	19.7	9.3	0.6	0.3
	66.6	45.5	21.1	3.6	11.2	5.8	0.4	0.2
	33.4	18.2	15.2	2.8	8.5	3.5	0.3	0.1

Table 8-Page 1 **California**

1980 Participation Rates for Each High Tech Occupation by Race, Sex and National Origin

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
Electrical and Electronic Assemblers								
	170,609	69,425	101,184	14,533	70,454	14,323	1,280	594
Number	88,082	37,164	50,918	7,516	37,288	5,236	561	317
	82,527	32,261	50,266	7,017	33,166	9,087	719	277
	100.0	40.7	59.3	8.5	41.3	8.4	0.8	0.3
Percent	51.6	21.8	29.8	4.4	21.9	3.1	0.3	0.2
	48.4	18.9	29.5	4.1	19.4	5.3	0.4	0.2
Computer Programmers								
	60,883	45,948	14,935	3,166	4,508	6,793	374	94
Number	33,427	26,260	7,167	1,293	1,961	3,725	139	49
	27,456	19,688	7,768	1,873	2,547	3,068	235	45
	100.0	75.5	24.5	5.2	7.4	11.2	0.6	0.2
Percent	54.9	43.1	11.8	2.1	3.2	6.1	0.2	0.1
	45.1	32.3	12.8	3.1	4.2	5.0	0.4	0.1

Table 8-Page 2

California

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
				Electrical Engineers				
Number	58,286	47,097	11,189	1,444	2,934	6,447	249	115
	54,722	44,570	10,152	1,140	2,612	6,048	243	109
	3,564	2,527	1,037	304	322	399	6	6
Percent	100.0	80.8	19.2	2.5	5.0	11.1	0.4	0.2
	93.9	76.5	17.4	2.0	4.5	10.4	0.4	0.2
	6.1	4.3	1.8	0.5	0.6	0.7	0.0	0.0
				Computer Operators				
Number	48,855	31,904	16,951	5,632	6,275	4,486	397	161
	19,949	12,521	7,428	2,160	2,810	2,204	186	68
	28,906	19,383	9,523	3,472	3,465	2,282	211	93
Percent	100.0	65.3	34.7	11.5	12.8	9.2	0.8	0.3
	40.8	25.6	15.2	4.4	5.8	4.5	0.4	0.1
	59.2	39.7	19.5	7.1	7.1	4.7	0.4	0.2

Table 8-Page 3

California

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
Electrical and Electronic Technicians								
Number	48,288	35,109	13,179	2,721	4,726	5,349	310	73
	41,900	30,992	10,908	2,293	3,762	4,526	260	67
	6,388	4,117	2,271	428	964	823	50	6
Percent	100.0	72.7	27.3	5.6	9.8	11.1	0.6	0.2
	86.8	64.2	22.6	4.7	7.8	9.4	0.5	0.1
	13.2	8.5	4.7	0.9	2.0	1.7	0.1	0.0
Computer Systems Analysts								
Number	29,907	24,281	5,626	1,191	1,441	2,783	124	87
	22,413	18,486	3,927	778	1,087	1,917	78	67
	7,494	5,795	1,699	413	354	866	46	20
Percent	100.0	81.2	18.8	4.0	4.8	9.3	0.4	0.3
	74.9	61.8	13.1	2.6	3.6	6.4	0.3	0.2
	25.1	19.4	5.7	1.4	1.2	2.9	0.2	0.1

Table 8-Page 4

California

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
				Industrial Engineers				
Number	25,740	21,562	4,178	750	1,705	1,517	129	77
	22,089	18,605	3,484	647	1,389	1,290	100	58
	3,651	2,957	694	103	316	227	29	19
Percent	100.0	83.8	16.2	2.9	6.6	5.9	0.5	0.3
	85.8	72.3	13.5	2.5	5.4	5.0	0.4	0.2
	14.2	11.5	2.7	0.4	1.2	0.9	0.1	0.1
				Mechanical Engineers				
Number	23,386	19,356	4,030	476	984	2,418	71	81
	22,835	18,950	3,885	445	945	2,352	62	81
	551	406	145	31	39	66	9	0
Percent	100.0	82.8	17.2	2.0	4.2	10.3	0.3	0.3
	97.6	81.0	16.6	1.9	4.0	10.1	0.3	0.3
	2.4	1.7	0.6	0.1	0.2	0.3	0.0	0.0

Table 8-Page 5

California

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
Data Processing Machine Mechanics								
	19,929	14,682	5,247	1,197	2,752	1,136	122	40
Number	18,817	13,961	4,856	1,086	2,576	1,032	122	40
	1,112	721	391	111	176	104	0	0
	100.0	73.7	26.3	6.0	13.8	5.7	0.6	0.2
Percent	94.4	70.1	24.4	5.4	12.9	5.2	0.6	0.2
	5.6	3.6	2.0	0.6	0.9	0.5	0.0	0.0
Peripheral EDP Equipment Operators								
	1,824	1,150	674	112	310	241	5	6
Number	740	446	294	39	162	88	5	0
	1,084	704	380	73	148	153	0	6
	100.0	63.0	37.0	6.1	17.0	13.2	0.3	0.3
Percent	40.6	24.5	16.1	2.1	8.9	4.8	0.3	0.0
	59.4	38.6	20.8	4.0	8.1	8.4	0.0	0.3

Table 9

State Aggregate for Minorities and Women
1980 Participation Rates for the High Loss Occupations by Race, Sex and National Origin

California

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
	707,264	370,631	336,633	44,362	248,645	36,231	5,472	1,923
Number	395,612	205,374	190,238	21,128	148,137	17,005	3,042	926
	311,652	165,257	146,395	23,234	100,508	19,226	2,430	997
	100.0	52.4	47.6	6.3	35.2	5.1	0.8	0.3
Percent	55.9	29.0	26.9	3.0	20.9	2.4	0.4	0.1
	44.1	23.4	20.7	3.3	14.2	2.7	0.3	0.1

Table 10-Page 1

California

1980 Participation Rates for Each High Loss Occupation by Race, Sex and National Origin

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
Farm Laborers								
Number	355,046	125,192	229,854	17,734	192,854	15,269	2,968	1,029
	249,837	92,216	157,621	13,260	132,008	9,492	2,170	691
	105,209	32,976	72,233	4,474	60,846	5,777	798	338
Percent	100.0	35.3	64.7	5.0	54.3	4.3	0.8	0.3
	70.4	26.0	44.4	3.7	37.2	2.7	0.6	0.2
	29.6	9.3	20.3	1.3	17.1	1.6	0.2	0.1
Compositors and Typesetters								
Number	109,103	71,831	37,272	10,294	15,650	10,103	926	299
	37,111	26,384	10,727	2,942	4,964	2,506	266	49
	71,992	45,447	26,545	7,352	10,686	7,597	660	250
Percent	100.0	65.8	34.2	9.4	14.3	9.3	0.8	0.3
	34.0	24.2	9.8	2.7	4.5	2.3	0.2	0.0
	66.0	41.7	24.3	6.7	9.8	7.0	0.6	0.2

Table 10-Page 2

California

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
Secondary School Teachers								
	75,378	63,742	11,636	3,352	5,448	2,287	418	131
Number	36,952	31,939	5,013	1,224	2,541	980	212	56
	38,426	31,803	6,623	2,128	2,907	1,307	206	75
	100.0	84.6	15.4	4.4	7.2	3.0	0.6	0.2
Percent	49.0	42.4	6.7	1.6	3.4	1.3	0.3	0.1
	51.0	42.2	8.8	2.8	3.9	1.7	0.3	0.1
Maids and Servants, Private								
	41,292	16,028	25,264	6,693	15,873	2,223	369	106
Number	3,396	1,697	1,699	461	946	239	38	15
	37,896	14,331	23,565	6,232	14,927	1,984	331	91
	100.0	38.8	61.2	16.2	38.4	5.4	0.9	0.3
Percent	8.2	4.1	4.1	1.1	2.3	0.6	0.1	0.0
	91.8	34.7	57.1	15.1	36.1	4.8	0.8	0.2

Table 10-Page 3

California

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
Farmers, Owners and Tenants								
Number	39,280	32,890	6,390	229	3,186	2,776	143	56
	34,302	28,866	5,436	162	2,780	2,348	95	51
	4,978	4,024	954	67	406	428	48	5
Percent	100.0	83.7	16.3	0.6	8.1	7.1	0.4	0.1
	87.3	73.5	13.8	0.4	7.1	6.0	0.2	0.1
	12.7	10.2	2.4	0.2	1.0	1.1	0.1	0.0
Teachers, College								
Number	39,279	32,866	6,413	1,579	2,713	1,785	261	75
	16,031	12,937	3,094	802	1,322	824	135	11
	23,248	19,929	3,319	777	1,391	961	126	64
Percent	100.0	83.7	16.3	4.0	6.9	4.5	0.7	0.2
	40.8	32.9	7.9	2.0	3.4	2.1	0.3	0.0
	59.2	50.7	8.4	2.0	3.5	2.4	0.3	0.2

Table 10-Page 4

California

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
Taxi Drivers								
Number	19,576	12,827	6,749	2,409	3,561	560	173	46
	16,901	10,705	6,196	2,175	3,326	541	108	46
	2,675	2,122	553	234	235	19	65	0
Percent	100.0	65.5	34.5	12.3	18.2	2.9	0.9	0.2
	86.3	54.7	31.7	11.1	17.0	2.8	0.6	0.2
	13.7	10.8	2.8	1.2	1.2	0.1	0.3	0.0
Child Care Workers, Private								
Number	16,856	11,535	5,321	888	3,529	643	133	128
	569	403	166	41	81	33	11	0
	16,287	11,132	5,155	847	3,448	610	122	128
Percent	100.0	68.4	31.6	5.3	20.9	3.8	0.8	0.8
	3.4	2.4	1.0	0.2	0.5	0.2	0.1	0.0
	96.6	66.0	30.6	5.0	20.5	3.6	0.7	0.8

Table 10-Page 5

California

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
Housekeepers, Private House								
	11,454	3,720	7,734	1,184	5,831	585	81	53
Number	513	227	286	61	169	42	7	7
	10,941	3,493	7,448	1,123	5,662	543	74	46
	100.0	32.5	67.5	10.3	50.9	5.1	0.7	0.5
Percent	4.5	2.0	2.5	0.5	1.5	0.4	0.1	0.1
	95.5	30.5	65.0	9.8	49.4	4.7	0.6	0.4

New York

Total Employed Civilian Labor Force in 1980

Refer to Tables 4 and 4.5.

- ✓ 7.6 percent of the nation's CLF was employed in New York.
- ✓ Minority participation in New York's CLF (21.6 percent) was somewhat greater than their participation in the national CLF (17.8 percent).
- ✓ All minority groups (except American Indians) had higher participation rates in New York's CLF (21.6 percent) than in the national CLF (17.8 percent): Blacks: 11.6 percent compared to 9.9 percent; Hispanics: 7.7 percent compared to 5.7 percent; and Asians: 2.0 percent compared to 1.6 percent.

New York's High Growth Occupations: 1980 Minority and Female Participation Rates

Refer to Tables 1, 4 and 5.

- ✓ Project 2000 High Growth occupations employed 39.5 percent of the state's CLF. This was roughly equivalent to the national percentage.
- ✓ Minorities had a slightly higher participation rate in the state's High Growth occupations (22.8 percent) than in the state CLF (21.6 percent).
- ✓ Blacks had a higher participation rate in High Growth occupations (13.1 percent) than in the state CLF (11.6 percent).
- ✓ Women had a higher participation rate in High Growth occupations (56.3 percent) than in the state CLF (43.4 percent).

New York's High Tech Occupations: 1980 Minority and Female Participation Rates

Refer to Tables 2, 4 and 7.

- ✓ 7.4 percent of the nation's High Tech work force was employed in New York.
- ✓ High Tech occupations employed 3.6 percent of the state CLF; a slightly higher rate than for the national CLF (3.0 percent).
- ✓ Females had a lower participation rate in the High Tech category (34.8 percent) than in the state CLF (43.4). The same was true of their participation on a national level.
- ✓ Minority males and females had roughly the same participation rates in the High Tech category (21.8 percent) and the state CLF (21.6).

New York's High Loss Occupations: 1980 Minority and Female Participation

Refer to Tables 3, 4 and 9.

√ 6.4 percent of the nation's High Loss work force was employed in New York.

√ 5.6 percent of the state CLF worked in the nine High Loss occupations. This percentage was somewhat below the national level (6.0 percent).

√ Females had higher participation rates in the High Loss category (47.3 percent) than in the state CLF (43.4 percent).

√ Black females had a higher participation rate in the High Loss category (9.4 percent) than in the state CLF (6.0 percent). This difference was the greatest of any group.

High Growth: Top Five Occupations Minority and Female Participation in 1980

Refer to Tables 4 and 6.

Secretaries

√ Females made up 98.5 percent of all those working in this occupation.

√ Nonminority females had the highest participation rate in this occupation, (84.1 percent) compared to their participation in New York's CLF (32.2 percent).

√ All groups of males had lower participation rates in this occupation (1.5 percent) than in the state CLF (56.6 percent).

Blue-Collar Worker Supervisors

√ Males composed 84 percent of all blue-collar worker supervisors.

√ Nonminority males had a higher participation rate in this occupation (72.6 percent) than in the state CLF (45.2 percent).

√ All female groups had lower participation rates in this occupation (15.7 percent) than in the state CLF (43.4 percent): black women, 1.6 percent compared to 6.0 percent; Asian women, 0.2 percent compared to 0.9 percent.

Janitors and Sextons

√ Males had a higher participation rate in this occupation (70.4 percent) than in the state CLF (56.6 percent).

√ The only two groups which had lower participation rates in this occupation than in the state CLF were nonminority females, and Asians.

√ All minority males, except Asians and Other, had higher participation rates in this occupation than in the state CLF.

Automotive Mechanics

- √ Males accounted for the majority of those working in this occupation: 71.2 percent.
- √ All groups of males, except Asians, had higher participation rates in this occupation than in the state CLF.
- √ Asian women had a lower participation rate in this occupation (0.4 percent) than in the state CLF (0.9 percent). This difference was the greatest of any group.

Sales Clerks

- √ Females had a higher participation rate in this occupation (65.4 percent) than in New York's CLF (43.4 percent). Nonminority females accounted for nearly 58 percent of all those working as sales clerks.
- √ In contrast, minority males and females had lower participation rates (15.7 percent) in this occupation than in the state CLF (21.6 percent).

High Tech: Top Three Occupations Minority and Female Participation in 1980

Refer to Tables 4 and 5.

Electrical and Electronic Assemblers

- √ Women had a higher participation rate in this occupation (51.2 percent) than in the state CLF (43.4 percent).
- √ All minority males, except Asians, had higher participation rates in this occupation than in the state CLF.

Computer Programmers

- √ Women had a slightly lower participation rate in this occupation (41.9 percent) than in the state CLF (43.4 percent).
- √ Minority women, except Asians, experienced most of this lower participation.
- √ All groups of minority males had lower participation rates in this occupation than in the state CLF. The exception to this was Asians, who had more than twice the participation rate in this occupation than in the state CLF.

Computer Operators

- √ Nonminority males had a lower participation rate in this occupation (46.4 percent) than in the state CLF (56.6 percent).
- √ Women had a higher participation rate in this occupation (53.6 percent) than in the state CLF (43.4 percent).
- √ Minority males had a slightly higher participation rate in this occupation (14.9 percent) than in the state CLF (11.4 percent).

High Loss:
Top Three Occupations
Minority and Female Participation in 1980

Refer to Tables 4 and 10.

Farm Laborers

- √ Most farm laborers were male (65.7 percent).
- √ Hispanic males had higher participation rates in this occupation (8.3 percent) than in the state CLF (4.5 percent).
- √ Hispanic females had a higher participation rate in this occupation (5.9 percent) than in the state CLF (3.2 percent). This was the only group of females whose occupational participation rate was greater than their participation rate in the state CLF.
- √ Both nonminority (0.5 percent) and Asian females (0.9 percent) had lower participation rates in this occupation than in the state CLF.

Compositors and Typesetters

- √ The participation rate for females (63.6 percent) working as compositors and typesetters was greater than their participation in New York's CLF (43.4).
- √ The participation rate for black women in this occupation (12.8 percent) was more than twice that in the state CLF (6.0). This was the greatest disparity among all groups.
- √ Minority males had a lower participation rate in this occupation (8.0 percent) than in the state CLF (4.1 percent). Nonminority males also had a lower participation rate (28.3 percent compared to 45.2 percent).

Secondary School Teachers

- √ Nonminority females had a higher participation rate in this occupation (49.4 percent) than in the state CLF (43.4 percent).
- √ Nonminority males had a lower participation rate in this occupation (42.4 percent) than in the state CLF (45.2 percent).
- √ All minority groups, particularly minority males, had lower participation rates in this occupation (all minorities: 8.2 percent) than in the state CLF (all minorities: 21.6 percent).

Table 1

State Totals: By Occupation
High Growth

New York

1980 State Civilian Work Force	1980 State Total: High Growth	% State Total: High Growth
7,928,161	3,135,190	39.5%

1980 National High Growth Work Force	State's Share of the National High Growth Work Force
41,504,050	7.55%

By Ranked Occupation

	Occupation	1980 Total
1.	Secretaries	349,454
2.	Blue-Collar Worker Supervisors	334,384
3.	Janitors and Sextons	214,820
4.	Automotive Mechanics	202,476
5.	Sales Clerks	190,423
6.	Helpers in the Trades	182,841
7.	Elementary School Teachers	179,315
8.	Truck Drivers	162,624
9.	General Clerks, Office	162,324
10.	Bookkeepers, Hand	161,177
11.	Typists	160,765
12.	Cashiers	140,436
13.	Nurse's Aides and Orderlies	128,289
14.	Nurses, Professional	122,005
15.	Guards and Doorkeepers	112,119
16.	Waiters and Waitresses	106,224
17.	Accountants and Auditors	95,388
18.	Kitchen Helpers	84,192
19.	Licensed Practical Nurses	30,684
20.	Food Preparation and Service Workers	15,250
	Total	3,135,190

Table 2

State Totals: By Occupation
High Tech

New York

1980 State Civilian Work Force	1980 State Total: High Tech	% State Total: High Tech
7,928,161	292,660	3.6%

1980 National High Growth Work Force	State's Share of the National High Growth Work Force
3,945,632	7.4%

By Ranked Occupation

	Occupation	1980 Total
1.	Electrical and Electronic Assemblers	109,027
2.	Computer Programmers	43,040
3.	Computer Operators	33,265
4.	Electrical Engineers	25,234
5.	Computer Systems Analysts	19,858
6.	Electrical and Electronic Technicians	18,995
7.	Mechanical Engineers	15,430
8.	Industrial Engineers	13,748
9.	Data Processing Machine Mechanics	11,672
10.	Peripheral EDP Equipment Operators	2,391
	Total	292,660

Table 3

State Totals: By Occupation High Loss

New York

1980 State Civilian Work Force	1980 State Total: High Loss	% State Total: High Loss
7,928,161	451,651	5.6%

1980 National High Growth Work Force	State's Share of the National High Growth Work Force
7,045,465	6.41%

By Ranked Occupation

Occupation	1980 Total
1. Farm Laborers	146,677
2. Compositors and Typesetters	79,650
3. Secondary School Teachers	77,089
4. Taxi Drivers	38,830
5. Farmers, Owners and Tenants	29,982
6. Maids and Servants, Private	29,640
7. Teachers, College	27,606
8. Child Care Workers, Private	12,423
9. Housekeepers, Private House	9,754
Total	451,651

Table 4

Total Employed Civilian Labor Force in 1980

New York

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
Number	7,928,161	6,214,867	1,713,294	919,629	610,673	157,437	16,493	9,062
	4,485,209	3,582,487	902,722	444,931	354,550	88,857	9,341	5,043
	3,442,952	2,632,380	810,572	474,698	256,123	68,580	7,152	4,019
Percent	100.0	78.4	21.6	11.6	7.7	2.0	0.2	0.1
	56.6	45.2	11.4	5.6	4.5	1.1	0.1	0.1
	43.4	33.2	10.2	6.0	3.2	0.9	0.1	0.1

Table 4.5

Total Employed Civilian Labor Force in 1980

National

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
Number	103,718,076	85,258,303	18,459,773	10,219,477	5,918,947	1,682,924	539,811	98,614
	59,625,553	49,633,442	9,992,111	5,161,234	3,561,059	903,321	308,962	57,535
	44,092,523	35,624,861	8,467,662	5,058,243	2,357,888	779,603	203,849	41,079
Percent	100.0	82.2	17.8	9.9	5.7	1.6	0.5	0.1
	57.5	47.9	9.6	5.0	3.4	0.9	0.3	0.1
	42.5	34.3	8.2	4.9	2.3	0.8	0.2	0.0

Table 5

State Aggregate for Minorities and Women

1980 Participation Rates for the High Growth Occupations by Race, Sex and National Origin

New York

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
Number	3,135,190	2,420,501	714,689	410,849	241,427	51,939	6,997	3,477
	1,371,190	1,047,163	324,027	166,083	129,566	23,610	3,341	1,427
	1,764,000	1,373,338	390,662	244,766	111,861	28,329	3,656	2,050
Percent	100.0	77.2	22.8	13.1	7.7	1.7	0.2	0.1
	43.7	33.4	10.3	5.3	4.1	0.8	0.1	0.0
	56.3	43.8	12.5	7.8	3.6	0.9	0.1	0.1

Table 6-Page 1

1980 Participation Rates for Each High Growth Occupation by Race, Sex and National Origin

New York

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
Secretaries								
	349,454	298,030	51,424	28,198	19,006	3,410	478	332
Number	5,397	4,169	1,228	663	389	156	13	7
	344,057	293,861	50,196	27,535	18,617	3,254	465	325
	100.0	85.3	14.7	8.1	5.4	1.0	0.1	0.1
Percent	1.5	1.2	0.4	0.2	0.1	0.0	0.0	0.0
	98.5	84.1	14.4	7.9	5.3	0.9	0.1	0.1
Blue-Collar Worker Supervisors								
	334,384	282,977	51,407	23,265	22,251	4,992	608	291
Number	281,922	242,634	39,288	17,995	16,396	4,194	506	197
	52,462	40,343	12,119	5,270	5,855	798	102	94
	100.0	84.6	15.4	7.0	6.7	1.5	0.2	0.1
Percent	84.3	72.6	11.7	5.4	4.9	1.3	0.2	0.1
	15.7	12.1	3.6	1.6	1.8	0.2	0.0	0.0

Table 6-Page 2

New York

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
				Janitors and Sextons				
	214,820	130,429	84,391	46,748	34,953	1,667	655	368
Number	151,137	92,538	58,599	30,206	26,590	1,149	448	206
	63,683	37,891	25,792	16,542	8,363	518	207	162
	100.0	60.7	39.3	21.8	16.3	0.8	0.3	0.2
Percent	70.4	43.1	27.3	14.1	12.4	0.5	0.2	0.1
	29.6	17.6	12.0	7.7	3.9	0.2	0.1	0.1
				Automotive Mechanics				
	202,476	152,657	49,819	25,955	21,212	1,869	586	197
Number	144,145	111,321	32,824	17,070	14,159	1,091	373	131
	58,331	41,336	16,995	8,885	7,053	778	213	66
	100.0	75.4	24.6	12.8	10.5	0.9	0.3	0.1
Percent	71.2	55.0	16.2	8.4	7.0	0.5	0.2	0.1
	28.8	20.4	8.4	4.4	3.5	0.4	0.1	0.0

Table 6-Page 3

New York

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
Sales Clerks								
	190,423	160,608	29,815	14,276	12,079	3,050	250	160
Number	65,835	52,662	13,173	5,877	5,508	1,650	94	44
	124,588	107,946	16,642	8,399	6,571	1,400	156	116
	100.0	84.3	15.7	7.5	6.3	1.6	0.1	0.1
Percent	34.6	27.7	6.9	3.1	2.9	0.9	0.0	0.0
	65.4	56.7	8.7	4.4	3.5	0.7	0.1	0.1
Helpers in the Trades								
	182,841	133,819	49,022	23,936	22,296	1,966	701	123
Number	131,258	98,359	32,899	16,638	14,551	1,136	485	89
	51,583	35,460	16,123	7,298	7,745	830	216	34
	100.0	73.2	26.8	13.1	12.2	1.1	0.4	0.1
Percent	71.8	53.8	18.0	9.1	8.0	0.6	0.3	0.0
	28.2	19.4	8.8	4.0	4.2	0.5	0.1	0.0

Table 6-Page 4

New York

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
Elementary School Teachers								
Number	179,315	160,127	19,188	12,313	5,422	1,091	218	144
	52,624	48,268	4,356	2,497	1,410	312	76	61
	126,691	111,859	14,832	9,816	4,012	779	142	83
Percent	100.0	89.3	10.7	6.9	3.0	0.6	0.1	0.1
	29.3	26.9	2.4	1.4	0.8	0.2	0.0	0.0
	70.7	62.4	8.3	5.5	2.2	0.4	0.1	0.0
Truck Drivers								
Number	162,624	133,023	29,601	17,892	10,455	497	656	101
	153,792	124,991	28,801	17,386	10,251	458	612	94
	8,832	8,032	800	506	204	39	44	7
Percent	100.0	81.8	18.2	11.0	6.4	0.3	0.4	0.1
	94.6	76.9	17.7	10.7	6.3	0.3	0.4	0.1
	5.4	4.9	0.5	0.3	0.1	0.0	0.0	0.0

Table 6-Page 5

New York

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
General Clerks, Office								
	162,324	114,307	48,017	31,644	12,586	3,164	338	285
Number	38,713	25,261	13,452	7,781	3,996	1,419	109	147
	123,611	89,046	34,565	23,863	8,590	1,745	229	138
	100.0	70.4	29.6	19.5	7.8	1.9	0.2	0.2
Percent	23.8	15.6	8.3	4.8	2.5	0.9	0.1	0.1
	76.2	54.9	21.3	14.7	5.3	1.1	0.1	0.1
Bookkeepers, Hand								
	161,177	135,295	25,882	13,583	8,460	3,421	200	218
Number	23,064	16,793	6,271	3,149	2,184	846	34	58
	138,113	118,502	19,611	10,434	6,276	2,575	166	160
	100.0	83.9	16.1	8.4	5.2	2.1	0.1	0.1
Percent	14.3	10.4	3.9	2.0	1.4	0.5	0.0	0.0
	85.7	73.5	12.2	6.5	3.9	1.6	0.1	0.1

Table 6-Page 6

New York

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
Typists								
	160,765	114,111	46,654	30,026	13,220	2,798	407	203
Number	22,775	16,166	6,609	3,763	2,159	644	30	13
	137,990	97,945	40,045	26,263	11,061	2,154	377	190
	100.0	71.0	29.0	18.7	8.2	1.7	0.3	0.1
Percent	14.2	10.1	4.1	2.3	1.3	0.4	0.0	0.0
	85.8	60.9	24.9	16.3	6.9	1.3	0.2	0.1
Cashiers								
	140,436	109,198	31,238	15,746	12,195	2,927	171	199
Number	28,658	20,399	8,259	3,626	3,810	763	3	57
	111,778	88,799	22,979	12,120	8,385	2,164	168	142
	100.0	77.8	22.2	11.2	8.7	2.1	0.1	0.1
Percent	20.4	14.5	5.9	2.6	2.7	0.5	0.0	0.0
	79.6	63.2	16.4	8.6	6.0	1.5	0.1	0.1

Table 6-Page 7

New York

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
Nurse's Aides and Orderlies								
Number	128,289	61,867	66,422	54,763	9,064	1,695	589	311
	18,840	8,839	10,001	7,406	2,076	391	88	40
	109,449	53,028	56,421	47,357	6,988	1,304	501	271
Percent	100.0	48.2	51.8	42.7	7.1	1.3	0.5	0.2
	14.7	6.9	7.8	5.8	1.6	0.3	0.1	0.0
	85.3	41.3	44.0	36.9	5.4	1.0	0.4	0.2
Nurses, Professional								
Number	122,005	91,225	30,780	20,397	3,670	6,407	181	125
	5,698	3,831	1,867	1,259	235	359	6	8
	116,307	87,394	28,913	19,138	3,435	6,048	175	117
Percent	100.0	74.8	25.2	16.7	3.0	5.3	0.1	0.1
	4.7	3.1	1.5	1.0	0.2	0.3	0.0	0.0
	95.3	71.6	23.7	15.7	2.8	5.0	0.1	0.1

Table 6 - Page 8

New York

	Total	Nonminority	Minority	Black	Hispanic	Asian	Am/Ind	Other
	Men Women	Men Women	Men Women	Men Women	Men Women	Men Women	Men Women	Men Women
				Guards and Doorkeepers				
Number	112,119	80,661	31,458	21,799	8,778	570	215	96
	103,674	75,257	28,417	19,496	8,136	516	179	90
	8,445	5,404	3,041	2,303	642	54	36	6
Percent	100.0	71.9	28.1	19.4	7.8	0.5	0.2	0.1
	92.5	67.1	25.3	17.4	7.3	0.5	0.2	0.1
	7.5	4.8	2.7	2.1	0.6	0.0	0.0	0.0
				Waiters and Waitresses				
Number	106,224	87,777	18,447	5,115	7,294	5,706	229	103
	26,006	15,757	10,249	1,528	4,291	4,340	30	60
	80,218	72,020	8,198	3,587	3,003	1,366	199	43
Percent	100.0	82.6	17.4	4.8	6.9	5.4	0.2	0.1
	24.5	14.8	9.6	1.4	4.0	4.1	0.0	0.1
	75.5	67.8	7.7	3.4	2.8	1.3	0.2	0.0

Table 6-Page 9

New York

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
				Accountants and Auditors				
Number	95,388	80,107	15,281	7,085	4,018	3,964	113	101
	67,902	58,475	9,427	4,330	2,554	2,428	67	48
	27,486	21,632	5,854	2,755	1,464	1,536	46	53
Percent	100.0	84.0	16.0	7.4	4.2	4.2	0.1	0.1
	71.2	61.3	9.9	4.5	2.7	2.5	0.1	0.1
	28.8	22.7	6.1	2.9	1.5	1.6	0.0	0.1
				Kitchen Helpers				
Number	84,192	60,949	23,243	9,115	11,917	1,838	294	79
	43,224	27,012	16,212	4,501	9,928	1,542	175	66
	40,968	33,937	7,031	4,614	1,989	296	119	13
Percent	100.0	72.4	27.6	10.8	14.2	2.2	0.3	0.1
	51.3	32.1	19.3	5.3	11.8	1.8	0.2	0.1
	48.7	40.3	8.4	5.5	2.4	0.4	0.1	0.0

Table 6-Page 10

New York

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
	Licensed Practical Nurses							
	30,684	21,005	9,679	7,648	1,284	640	77	30
Number	1,167	735	432	369	37	26	0	0
	29,517	20,270	9,247	7,279	1,247	614	77	30
	100.0	68.5	31.5	24.9	4.2	2.1	0.3	0.1
Percent	3.8	2.4	1.4	1.2	0.1	0.1	0.0	0.0
	96.2	66.1	30.1	23.7	4.1	2.0	0.3	0.1
	Food Preparation and Service Workers							
	15,250	12,329	2,921	1,345	1,267	267	31	11
Number	5,359	3,696	1,663	543	906	190	13	11
	9,891	8,633	1,258	802	361	77	18	0
	100.0	80.8	19.2	8.8	8.3	1.8	0.2	0.1
Percent	35.1	24.2	10.9	3.6	5.9	1.2	0.1	0.1
	64.9	56.6	8.2	5.3	2.4	0.5	0.1	0.0

Table 7

State Aggregate for Minorities and Women
1980 Participation Rates for the High Tech Occupations by Race, Sex and National Origin

New York

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
	292,660	228,791	63,869	32,921	22,557	7,346	681	364
Number	190,817	154,179	36,638	17,524	13,207	5,285	363	259
	101,843	74,612	27,231	15,397	9,350	2,061	318	105
	100.0	78.2	21.8	11.2	7.7	2.5	0.2	0.1
Percent	65.2	52.7	12.5	6.0	4.5	1.8	0.1	0.1
	34.8	25.5	9.3	5.3	3.2	0.7	0.1	0.0

Table 8-Page 1

New York

1980 Participation Rates for Each High Tech Occupation by Race, Sex and National Origin

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
Electrical and Electronic Assemblers								
Number	109,027	77,229	31,798	16,574	13,464	1,246	373	141
	53,232	37,743	15,489	8,039	6,731	478	166	75
	55,795	39,486	16,309	8,535	6,733	768	207	66
Percent	100.0	70.8	29.2	15.2	12.3	1.1	0.3	0.1
	48.8	34.6	14.2	7.4	6.2	0.4	0.2	0.1
	51.2	36.2	15.0	7.8	6.2	0.7	0.2	0.1
Computer Programmers								
Number	43,040	34,765	8,275	4,168	2,225	1,770	53	59
	24,989	20,505	4,484	2,047	1,271	1,094	18	54
	18,051	14,260	3,791	2,121	954	676	35	5
Percent	100.0	80.8	19.2	9.7	5.2	4.1	0.1	0.1
	58.1	47.6	10.4	4.8	3.0	2.5	0.0	0.1
	41.9	33.1	8.8	4.9	2.2	1.6	0.1	0.0

Table 8-Page 2

New York

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
Computer Operators								
Number	33,265	23,151	10,114	6,381	2,741	861	96	35
	15,420	10,452	4,968	2,817	1,599	507	32	13
	17,845	12,699	5,146	3,564	1,142	354	64	22
Percent	100.0	69.6	30.4	19.2	8.2	2.6	0.3	0.1
	46.4	31.4	14.9	8.5	4.8	1.5	0.1	0.0
	53.6	38.2	15.5	10.7	3.4	1.1	0.2	0.1
Electrical Engineers								
Number	25,234	22,559	2,675	787	669	1,160	41	18
	24,470	21,915	2,555	731	622	1,149	41	12
	764	644	120	56	47	11	0	6
Percent	100.0	89.4	10.6	3.1	2.7	4.6	0.2	0.1
	97.0	86.8	10.1	2.9	2.5	4.6	0.2	0.0
	3.0	2.6	0.5	0.2	0.2	0.0	0.0	0.0

Table 8-Page 3

New York

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
Computer Systems Analysts								
	19,858	17,367	2,491	1,128	630	704	21	8
Number	15,543	13,716	1,827	775	479	544	21	8
	4,315	3,651	664	353	151	160	0	0
	100.0	87.5	12.5	5.7	3.2	3.5	0.1	0.0
Percent	78.3	69.1	9.2	3.9	2.4	2.7	0.1	0.0
	21.7	18.4	3.3	1.8	0.8	0.8	0.0	0.0
Electrical and Electronic Technicians								
	18,995	15,992	3,003	1,582	905	451	30	35
Number	17,262	14,749	2,513	1,247	806	400	25	35
	1,733	1,243	490	335	99	51	5	0
	100.0	84.2	15.8	8.3	4.8	2.4	0.2	0.2
Percent	90.9	77.6	13.2	6.6	4.2	2.1	0.1	0.2
	9.1	6.5	2.6	1.8	0.5	0.3	0.0	0.0

Table 8-Page 4

New York

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
Mechanical Engineers								
Number	15,430	13,828	1,602	484	418	654	20	26
	15,176	13,606	1,570	484	411	629	20	26
	254	222	32	0	7	25	0	0
Percent	100.0	89.6	10.4	3.1	2.7	4.2	0.1	0.2
	98.4	88.2	10.2	3.1	2.7	4.1	0.1	0.2
	1.6	1.4	0.2	0.0	0.0	0.2	0.0	0.0
Peripheral EDP Equipment Operators								
Number	2,391	1,661	730	453	245	32	0	0
	962	687	275	143	106	26	0	0
	1,429	974	455	310	139	6	0	0
Percent	100.0	69.5	30.5	18.9	10.2	1.3	0.0	0.0
	40.2	28.7	11.5	6.0	4.4	1.1	0.0	0.0
	59.8	40.7	19.0	13.0	5.8	0.3	0.0	0.0

Table 8-Page 5
New York

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
Industrial Engineers								
	13,748	12,823	925	431	234	238	0	22
Number	12,645	11,821	824	379	195	228	0	22
	1,103	1,002	101	52	39	10	0	0
	100.0	93.3	6.7	3.1	1.7	1.7	0.0	0.2
Percent	92.0	86.0	6.7	2.8	1.4	1.7	0.0	0.2
	8.0	7.3	0.7	0.4	0.3	0.1	0.0	0.0
Data Processing Machine Mechanics								
	11,672	9,416	2,256	933	1,026	230	47	20
Number	11,118	8,985	2,133	862	987	230	40	14
	554	431	123	71	39	0	7	6
	100.0	80.7	19.3	8.0	8.8	2.0	0.4	0.2
Percent	95.3	77.0	18.3	7.4	8.5	2.0	0.3	0.1
	4.7	3.7	1.1	0.6	0.3	0.0	0.1	0.1

Table 9

State Aggregate for Minorities and Women

1980 Participation Rates for the High Loss Occupations by Race, Sex and National Origin

New York

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
Number	451,651	332,127	119,524	69,368	42,161	6,164	1,200	631
	238,163	185,327	52,836	26,901	22,161	2,886	611	277
	213,488	146,800	66,688	42,467	20,000	3,278	589	354
Percent	100.0	73.5	26.5	15.4	9.3	1.4	0.3	0.1
	52.7	41.0	11.7	6.0	4.9	0.6	0.1	0.1
	47.3	32.5	14.8	9.4	4.4	0.7	0.1	0.1

Table 10-Page 1

New York

1980 Participation Rates for Each High Loss Occupation by Race, Sex and National Origin

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
Farm Laborers								
Number	146,677 96,433 50,244	104,446 70,661 33,785	42,231 25,772 16,459	18,852 12,152 6,700	20,940 12,217 8,723	613 849 764	617 465 152	209 89 120
Percent	100.0 65.7 34.3	71.2 48.2 23.0	28.8 17.6 11.2	12.9 8.3 4.6	14.3 8.3 5.9	1.1 0.6 0.5	0.4 0.3 0.1	0.1 0.1 0.1
Compositors and Typesetters								
Number	79,650 28,679 50,244	57,846 22,580 35,266	21,804 6,391 15,413	13,246 3,265 9,981	6,557 2,481 4,076	1,740 573 1,167	174 39 135	87 33 54
Percent	100.0 36.4 63.6	72.6 28.3 44.3	27.4 8.0 19.4	16.6 4.1 12.5	8.2 3.1 5.1	2.2 0.7 1.5	0.2 0.0 0.2	0.1 0.0 0.1

Table 10-Page 2

New York

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
Secondary School Teachers								
Number	77,089	70,767	6,322	4,071	1,740	358	119	34
	34,786	32,659	2,127	1,262	678	128	37	22
	42,303	38,108	4,195	2,809	1,062	230	82	12
Percent	100.0	91.8	8.2	5.3	2.3	0.5	0.2	0.0
	45.1	42.4	2.8	1.6	0.9	0.2	0.0	0.0
	54.9	49.4	5.4	3.6	1.4	0.3	0.1	0.0
Taxi Drivers								
Number	38,830	23,434	15,396	8,505	5,748	982	51	110
	37,308	22,291	15,017	8,246	5,651	974	44	102
	1,522	1,143	379	259	97	8	7	8
Percent	100.0	60.4	39.6	21.9	14.8	2.5	0.1	0.3
	96.1	57.4	38.7	21.2	14.6	2.5	0.1	0.3
	3.9	2.9	1.0	0.7	0.2	0.0	0.0	0.0

Table 10-Page 3

New York

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
Farmers, Owners and Tenants								
	29,982	29,655	327	112	132	55	20	8
Number	26,299	26,029	270	95	99	48	20	8
	3,683	3,626	57	17	33	7	0	0
	100.0	98.9	1.1	0.4	0.4	0.2	0.1	0.0
Percent	87.7	86.8	0.9	0.3	0.3	0.2	0.1	0.0
	12.3	12.1	0.2	0.1	0.1	0.0	0.0	0.0
Maids and Servants, Private								
	29,640	9,998	19,642	15,572	3,411	422	115	122
Number	1,993	881	1,112	763	285	51	6	7
	27,647	9,117	18,530	14,809	3,126	371	109	115
	100.0	33.7	66.3	52.5	11.5	1.4	0.4	0.4
Percent	6.7	3.0	3.8	2.6	1.0	0.2	0.0	0.0
	93.3	30.8	62.5	50.0	10.5	1.3	0.4	0.4

Table 10-Page 4

New York

Teachers, College

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
Number	27,606	23,629	3,977	2,199	1,189	521	52	16
	11,603	9,758	1,845	934	652	243	0	16
	16,003	13,871	2,132	1,265	537	278	52	0
Percent	100.0	85.6	14.4	8.0	4.3	1.9	0.2	0.1
	42.0	35.3	6.7	3.4	2.4	0.9	0.0	0.1
	58.0	50.2	7.7	4.6	1.9	1.0	0.2	0.0

Child Care Workers, Private

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
Number	12,423	9,285	3,138	2,172	758	157	27	24
	436	327	109	75	34	0	0	0
	11,987	8,958	3,029	2,097	724	157	27	24
Percent	100.0	74.4	25.3	17.5	6.1	1.3	0.2	0.2
	3.5	2.6	0.9	0.6	0.3	0.0	0.0	0.0
	96.5	72.1	24.4	16.9	5.8	1.3	0.2	0.2

Table 10-Page 5

New York

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
				Housekeepers, Private House				
	9,754	3,067	6,687	4,639	1,686	316	25	21
Number	334	141	193	109	64	20	0	0
	9,420	2,926	6,494	4,530	1,622	296	25	21
	100.0	31.4	68.6	47.6	17.3	3.2	0.3	0.2
Percent	3.4	1.4	2.0	1.1	0.7	0.2	0.0	0.0
	96.6	30.0	66.6	46.4	16.6	3.0	0.3	0.2

Texas

Total Employed Civilian Labor Force in 1980

Refer to Tables 4 and 4.5.

√ 6.3 percent of the nation's CLF worked in Texas.
√ Texas had a significantly higher proportion of minorities in its civilian labor force (29.7 percent) than were in the national CLF (17.8 percent).
√ Nearly 30 percent of the state CLF was composed of minority workers.
√ Hispanics made up 17.6 percent of the state CLF.

Texas' High Growth Occupations: 1980 Minority and Female Participation

Refer to Tables 1, 4 and 5.

√ 6.3 percent of the nation's High Growth work force was employed in Texas.
√ 40.2 percent of the state CLF was employed in the designated High Growth occupations. This proportion was slightly higher than the national level of participation (39.7 percent).
√ Women had a higher participation rate in the High Growth category (54.0 percent) than in the state CLF (41.4 percent).
√ Minorities also had a higher participation rate in the High Growth occupations (32.5 percent) than in the state CLF (29.7 percent).

Texas' High Tech Occupations: 1980 Minority and Female Participation

Refer to Tables 2, 4 and 7.

√ 5.6 percent of the nation's High Tech labor force was employed in Texas.
√ 3.2 percent of the state CLF was employed in the designated High Tech occupations.
√ Females had a lower participation rate in the High Tech category (34.5 percent) than in the state CLF (41.4 percent).
√ Hispanics, in particular, had a lower participation rate in this category (14.3 percent) than in the state CLF (17.6 percent).
√ Asians had a higher participation rate in this category (2.5 percent) than in the state CLF (0.9 percent).

Texas' High Loss Occupations: 1980 Minority and Female Participation

Refer to Tables 3, 4 and 9.

- ✓ 6.0 percent of the nation's High Loss work force was employed in Texas.
- ✓ 6.4 percent of the state CLF was employed in the designated High Loss occupations; a slightly lower proportion than in the national CLF (6.7 percent).
- ✓ 41 percent of those working in the High Loss category were employed as farm laborers.
- ✓ Minorities had a much higher participation rate in the High Loss category (41.5 percent) than in the state CLF (29.7 percent).
- ✓ Minority women had a higher participation rate in the High Loss category (18.7 percent) than in the state CLF (12.6 percent). This was the greatest difference in participation of all groups.

High Growth: Top Five Occupations Minority and Female Participation in 1980

Refer to Tables 4 and 6.

Blue-Collar Worker Supervisors

- ✓ Females, particularly minority women, had lower participation rates in this occupation (all females: 14.1 percent) than in the state CLF (all females: 41.4 percent).
- ✓ Nonminority males had a higher participation rate in this occupation (68.6 percent) than in the state CLF (58.6 percent).
- ✓ Minority males had a participation rate in this occupation (17.0 percent) similar to that in the state CLF (17.1 percent).

Secretaries

- ✓ Nearly all of those working in this occupation were female (99.1 percent).
- ✓ Nonminority women represented almost 84 percent of all secretaries.
- ✓ Males constituted a mere 0.9 percent of all those employed as secretaries.

Truck Drivers

- ✓ Males made up 93 percent of all those working in this occupation.
- ✓ Minority males had a much higher participation rate in this occupation (42.7 percent) than in the state CLF (17.1 percent). This was particularly true for Black and Hispanic males.
- ✓ Black females had a much lower participation rate in this occupation (0.6 percent) than in the state CLF (5.3 percent). This was also true for nonminority females, who had a participation rate of 4.1 percent compared to their 28.8 percent portion of the state CLF.

Helpers in the Trades

- √ Females had a lower participation rate in this occupation (22.0 percent) than in the state CLF (41.4 percent).
- √ Nonminority females had a 2.5 times lower participation rate in this occupation than in the state CLF.
- √ All groups of minority males had higher participation rates in this occupation than in the state CLF. This difference in participation was greatest for black males (13.4 percent compared to 5.5 percent).

Automotive Mechanics

- √ Males accounted for 77.5 percent of all those working in this occupation.
- √ Nonminority females had a much lower participation rate in this occupation (10.8 percent) than in the state CLF (28.8 percent).
- √ Asian women had double the participation rate (0.8 percent) in this occupation as in the state CLF (0.4 percent).
- √ All groups of minority males had higher participation rates in this occupation (27.9 percent) than in the state CLF (17.1 percent).

High Tech: Top Three Occupations Minority and Female Participation in 1980

Refer to Tables 4 and 8.

Electrical and Electronic Assemblers

- √ Men and women were equally represented in this occupation.
- √ Minority women made up 25 percent of all those working in this occupation.
- √ Asian women had a four times higher rate of participation than in the state CLF.
- √ Nonminorities had a lower participation rate in this occupation (51.6 percent) than in the state CLF (70.3 percent).

Computer Programmers

- √ The numbers of men and women employed as computer programmers were nearly equal.
- √ Nonminorities had a higher participation rate in this occupation (79.7 percent) than in the state CLF (70.3 percent).
- √ Minority women had comparable participation rates (12.2 percent) in this occupation and in the state CLF (12.6 percent). The exception was Asian women, who had a 2.5 times higher participation rate than in the state CLF.
- √ All groups of minority males, except Asians, had lower participation rates in this occupation than in the state CLF.

Computer Operators

- √ Females had a higher participation rate in this occupation (57.5 percent) than in the state CLF (41.4 percent).

- ✓ All groups of males, except Asians, had lower participation rates in this occupation (42.5 percent) than in the state CLF (58.6 percent). This difference was the greatest for Hispanic males.

High Loss: Top Three Occupations Minority and Female Participation in 1980

Refer to Tables 4 and 10.

Farm Laborers

- ✓ 42 percent of all farm laborers were Hispanic.
- ✓ Most farm laborers (57.9 percent) were minorities.
- ✓ Nonminority women had a lower participation rate in this occupation (11.3 percent) than in the state CLF (28.8 percent).

Farmers, Owners and Tenants

- ✓ 91 percent of all those working in this occupation were male.
- ✓ 93.6 percent of all those working as farmers, owners and tenants were nonminority.

Compositors and Typesetters

- ✓ Females had a higher participation rate in this occupation (72.8 percent) than in the state CLF (41.4 percent).
- ✓ Almost 50 percent of all those working in this occupation were nonminority.
- ✓ All groups of minority women had higher participation rates in this occupation than in the state CLF.

Table 1

State Totals: By Occupation
High Growth

Texas

1980 State Civilian Work Force	1980 State Total: High Growth	% State Total: High Growth
6,546,335	2,634,292	40.2%

1980 National High Growth Work Force		State's Share of the National High Growth Work Force
41,504,050		6.3%

By Ranked Occupation

	Occupation	1980 Total
1.	Blue-Collar Worker Supervisors	379,990
2.	Secretaries	272,120
3.	Truck Drivers	242,250
4.	Helpers in the Trades	200,839
5.	Automotive Mechanics	175,892
6.	Janitors and Sextons	164,788
7.	Sales Clerks	159,486
8.	Elementary School Teachers	153,712
9.	Bookkeepers, Hand	134,440
10.	Cashiers	129,654
11.	Typists	91,107
12.	General Clerks, Office	85,710
13.	Nurse's Aides and Orderlies	84,258
14.	Waiters and Waitresses	74,865
15.	Accountants and Auditors	70,894
16.	Nurses, Professional	61,020
17.	Kitchen Helpers	54,622
18.	Guards and Doorkeepers	53,129
19.	Licensed Practical Nurses	33,938
20.	Food Preparation and Service Workers	11,578
	Total	2,634,292

Table 2

State Totals: By Occupation
High Tech

Texas

1980 State Civilian Work Force	1980 State Total: High Tech	% State Total: High Tech
6,546,335	221,125	3.2%

1980 National High Tech Work Force		State's Share of the National High Tech Work Force
3,945,632		5.6%

By Ranked Occupation

	Occupation	1980 Total
1.	Electrical and Electronic Assemblers	76,203
2.	Computer Programmers	30,785
3.	Computer Operators	28,618
4.	Electrical Engineers	20,862
5.	Electrical and Electronic Technicians	20,028
6.	Data Processing Machine Mechanics	11,269
7.	Computer Systems Analysts	11,134
8.	Industrial Engineers	11,070
9.	Mechanical Engineers	10,330
10.	Peripheral EDP Equipment Operators	826
	Total	221,125

Table 3

State Totals: By Occupation High Loss

Texas

1980 State Civilian Work Force	1980 State Total: High Loss	% State Total: High Loss
6,546,335	424,177	6.4%

1980 National High Loss Work Force	State's Share of the National High Loss Work Force
7,045,465	6.0%

By Ranked Occupation

	Occupation	1980 Total
1.	Farm Laborers	175,246
2.	Farmers, Owners and Tenants	70,798
3.	Compositors and Typesetters	50,965
4.	Secondary School Teachers	50,302
5.	Maids and Servants, Private	34,155
6.	Teachers, College	18,745
7.	Taxi Drivers	10,283
8.	Childcare Workers, Private	8,519
9.	Housekeepers, Private House	5,164
	Total	424,177

Table 4

Total Employed Civilian Labor Force in 1980

Texas

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
Number	6,546,335	4,599,300	1,947,035	709,774	1,150,190	58,841	21,718	6,512
	3,833,595	2,711,151	1,122,444	359,971	712,953	32,629	12,875	4,016
	2,712,740	1,888,149	824,591	349,803	437,237	26,212	8,843	2,496
Percent	100.0	70.3	29.7	10.8	17.6	0.9	0.3	0.1
	58.6	41.4	17.1	5.5	10.9	0.5	0.2	0.1
	41.4	28.8	12.6	5.3	6.7	0.4	0.1	0.0

Table 4.5

Total Employed Civilian Labor Force in 1980

National

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
Number	103,718,076	85,258,303	18,459,773	10,219,477	5,918,947	1,682,924	539,811‹128›	98,614
	59,625,553	49,633,442	9,992,111	5,161,234	3,561,059	903,321	308,962	57,535
	44,092,523	35,624,861	8,467,662	5,058,243	2,357,888	779,603	230,849	41,079
Percent	100.0	82.2	17.8	9.9	5.7	1.6	0.5	0.1
	57.5	47.9	9.6	5.0	3.4	0.9	0.3	0.1
	42.5	34.3	8.2	4.9	2.3	0.8	0.2	0.0

Table 5

State Aggregate for Minorities and Women
1980 Participation Rates for the High Growth Occupations by Race, Sex and National Origin

Texas

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
	2,634,292	1,779,164	855,128	326,953	494,726	22,654	8,413	2,382
Number	1.211,356	784,196	427,160	146,942	266,168	8,797	4,018	1,235
	1,422,936	994,968	427,968	180,011	228,558	13,857	4,395	1,147
	100.0	67.5	32.5	12.4	18.8	0.9	0.3	0.1
Percent	46.0	29.8	16.2	5.6	10.1	0.3	0.2	0.0
	54.0	37.8	16.2	6.8	8.7	0.5	0.2	0.0

Table 6-Page 1 **Texas**

1980 Participation Rates for Each High Growth Occupation by Race, Sex and National Origin

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
Blue-Collar Worker Supervisors								
	379,990	301,709	78,281	23,835	50,450	2,484	1,308	204
Number	326,375	261,848	64,527	18,601	42,514	2,080	1,128	204
	53,615	39,861	13,754	5,234	7,936	404	180	0
	100.0	79.4	20.6	6.3	13.3	0.7	0.3	0.1
Percent	85.9	68.6	17.0	4.9	11.2	0.5	0.3	0.1
	14,1	10.5	3.6	1.4	2.1	0.1	0.0	0.0
Secretaries								
	272,120	229,466	42,654	12,717	28,088	972	731	146
Number	2,522	1,935	587	147	412	28	0	0
	269,598	227,531	42,067	12,570	27,676	944	731	146
	100.0	84.3	15.7	4.7	10.3	0.4	0.3	0.1
Percent	0.9	0.7	0.2	0.1	0.2	0.0	0.0	0.0
	99.1	83.6	15.5	4.6	10.2	0.3	0.3	0.1

Table 6-Page 2

Texas

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
				Truck Drivers				
	242,250	130,922	111,328	36,895	73,166	219	853	195
Number	224,372	120,933	103,439	35,448	66,796	203	799	193
	17,878	9,989	7,889	1,447	6,370	16	54	2
	100.0	54.0	46.0	15.2	30.2	0.1	0.4	0.1
Percent	92.6	49.9	42.7	14.6	27.6	0.1	0.3	0.1
	7.4	4.1	3.3	0.6	2.6	0.0	0.0	0.0
				Helpers in the Trades				
	200,839	105,318	95,521	35,627	57,179	1,751	703	261
Number	156,584	81,868	74,716	26,825	45,952	1,204	519	216
	44,255	23,450	20,805	8,802	11,227	547	184	45
	100.0	52.4	47.6	17.7	28.5	0.9	0.4	0.1
Percent	78.0	40.8	37.2	13.4	22.9	0.6	0.3	0.1
	22.0	11.7	10.4	4.4	5.6	0.3	0.1	0.0

Table 6-Page 3

Texas

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
				Automotive Mechanics				
	175,892	106,425	69,467	24,898	40,843	2,773	737	216
Number	136,399	87,408	48,991	15,317	31,503	1,414	589	168
	34,493	19,017	20,476	9,581	9,340	1,359	148	48
	100.0	60.5	39.5	14.2	23.2	1.6	0.4	0.1
Percent	77.5	49.7	27.9	8.7	17.9	0.8	0.3	0.1
	22.5	10.8	11.6	5.4	5.3	0.8	0.1	0.0
				Janitors and Sextons				
	164,788	57,795	106,993	50,036	55,122	1,088	528	219
Number	95,193	39,588	55,605	24,524	30,079	626	270	106
	69,595	18,207	51,388	25,512	25,043	462	258	113
	100.0	35.1	64.9	30.4	33.5	0.7	0.3	0.1
Percent	57.8	24.0	33.7	14.9	18.3	0.4	0.2	0.1
	42.2	11.0	31.2	15.5	15.2	0.3	0.2	0.1

Table 6-Page 4

Texas

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
				Sales Clerks				
Number	159,486	120,452	39,034	10,610	27,027	959	321	117
	43,989	32,702	11,287	2,852	7,973	316	85	61
	115,497	87,750	27,747	7,758	19,054	643	236	56
Percent	100.0	75.5	24.5	6.7	16.9	0.6	0.2	0.1
	27.6	20.5	7.1	1.8	5.0	0.2	0.1	0.0
	72.4	55.0	17.4	4.9	11.9	0.4	0.1	0.0
				Elementary School Teachers				
Number	153,712	115,651	38,061	18,800	18,360	451	350	100
	28,643	20,421	8,222	3,252	4,763	105	89	13
	125,069	95,230	29,839	15,548	13,597	346	261	87
Percent	100.0	75.2	24.8	12.2	11.9	0.3	0.2	0.1
	18.6	13.3	5.3	2.1	3.1	0.1	0.1	0.0
	81.4	62.0	19.4	10.1	8.8	0.2	0.2	0.1

Table 6-Page 5

Texas

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
				Bookkeepers, Hand				
Number	134,440	114,011	20,429	5,912	13,065	971	380	101
	12,882	10,261	2,621	632	1,814	139	10	26
	121,558	103,750	17,808	5,280	11,251	832	370	75
Percent	100.0	84.8	15.2	4.4	9.7	0.7	0.3	0.1
	9.6	7.6	1.9	0.5	1.3	0.1	0.0	0.0
	90.4	77.2	13.2	3.9	8.4	0.6	0.3	0.1
				Cashiers				
Number	129,654	85,053	44,601	15,073	27,013	1,988	411	116
	21,531	13,518	8,013	2,233	5,114	624	29	12
	108,123	71,535	36,588	12,840	21,899	1,363	382	104
Percent	100.0	65.6	34.4	11.6	20.8	1.5	0.3	0.1
	16.6	10.4	6.2	1.7	3.9	0.5	0.0	0.0
	83.4	55.2	28.2	9.9	16.9	1.1	0.3	0.1

Table 6-Page 6

Texas

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
				Typists				
Number	91,107	59,958	31,149	13,947	15,781	1,026	315	80
	10,690	7,503	3,187	1,085	1,954	105	29	14
	80,417	52,455	27,962	12,862	13,827	921	286	66
Percent	100.0	65.8	34.2	15.3	17.3	1.1	0.3	0.1
	11.7	8.2	3.5	1.2	2.1	0.1	0.0	0.0
	88.3	57.6	30.7	14.1	15.2	1.0	0.3	0.1
				General Clerks, Office				
Number	85,710	58,653	27,057	10,721	15,517	507	236	76
	13,829	8,873	4,956	1,647	3,139	122	28	20
	71,881	49,780	22,101	9,074	12,378	385	208	56
Percent	100.0	68.4	31.6	12.5	18.1	0.6	0.3	0.1
	16.1	10.4	5.8	1.9	3.7	0.1	0.0	0.0
	83.9	58.1	25.8	10.6	14.4	0.4	0.2	0.1

Table 6-Page 7

Texas

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
				Nurse's Aides and Orderlies				
Number	84,258	38,096	46,162	28,416	16,710	621	334	81
	7,947	3,460	4,487	2,657	1,737	72	21	0
	76,311	34,636	41,675	25,759	14,973	549	313	81
Percent	100.0	45.2	54.8	33.7	19.8	0.7	0.4	0.1
	9.4	4.1	5.3	3.2	2.1	0.1	0.0	0.0
	90.6	41.1	49.5	30.6	17.8	0.7	0.4	0.1
				Waiters and Waitresses				
Number	74,865	53,683	21,182	5,671	13,619	1,489	274	129
	12,321	6,907	5,414	1,394	3,665	307	19	29
	62,544	46,776	15,768	4,277	9,954	1,182	255	100
Percent	100.0	71.7	28.3	7.6	18.2	2.0	0.4	0.2
	16.5	9.2	7.2	1.9	4.9	0.4	0.0	0.0
	83.5	62.5	21.1	5.7	13.3	1.6	0.3	0.1

Table 6-Page 8

Texas

	Total	Nonminority	Minority	Black	Hispanic	Asian	Am/Ind	Other
	Men Women	Men Women	Men Women	Men Women	Men Women	Men Women	Men Women	Men Women
				Accountants and Auditors				
Number	70,894	61,289	9,605	3,479	4,604	1,309	146	67
	42,176	37,111	5,065	1,341	2,889	682	100	53
	28,718	24,178	4,540	2,138	1,715	627	46	14
Percent	100.0	86.5	13.5	4.9	6.5	1.8	0.2	0.1
	59.5	52.3	7.1	1.9	4.1	1.0	0.1	0.1
	40.5	34.1	6.4	3.0	2.4	0.9	0.1	0.0
				Nurses, Professional				
Number	61,020	48,343	12,677	5,573	4,494	2,385	190	35
	3,615	2,693	922	300	467	145	10	0
	57,405	46,650	11,755	5,273	4,027	2,240	180	35
Percent	100.0	79.2	20.8	9.1	7.4	3.9	0.3	0.1
	5.9	4.4	1.5	0.5	0.8	0.2	0.0	0.0
	94.1	74.8	19.3	8.6	6.6	3.7	0.3	0.1

Table 6-Page 9

Texas

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
Kitchen Helpers								
Number	54,622	24,816	29,806	10,675	17,764	1,126	127	114
	21,513	9,792	11,721	3,809	7,326	474	60	52
	33,109	15,024	18,085	6,866	10,438	652	67	62
Percent	100.0	45.4	54.6	19.5	32.5	2.1	0.2	0.2
	39.4	17.9	21.5	7.0	13.4	0.9	0.1	0.1
	60.6	27.5	33.1	12.6	19.1	1.2	0.1	0.1
Guards and Doorkeepers								
Number	53,129	39,215	13,914	5,388	7,999	150	298	79
	47,427	35,327	12,100	4,393	7,303	109	227	68
	5,702	3,888	1,814	995	696	41	71	11
Percent	100.0	73.8	26.2	10.1	15.1	0.3	0.6	0.1
	89.3	66.5	22.8	8.3	13.7	0.2	0.4	0.1
	10.7	7.3	3.4	1.9	1.3	0.1	0.1	0.0

Table 6-Page 10

Texas

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
Licensed Practical Nurses								
Number	33,938	21,132	12,806	7,221	5,155	253	133	44
	1,191	665	526	234	273	13	6	0
	32,747	20,467	12,280	6,987	4,882	240	127	44
Percent	100.0	62.3	37.7	21.3	15.2	0.7	0.4	0.1
	3.5	2.0	1.5	0.7	0.8	0.0	0.0	0.0
	96.5	60.3	36.2	20.6	14.4	0.7	0.4	0.1
Food Preparation and Service Workers								
Number	11,578	7,177	4,401	1,459	2,770	132	38	2
	2,157	1,383	774	251	495	28	0	0
	9,421	5,794	3,627	1,208	2,275	104	38	2
Percent	100.0	62.0	38.0	12.6	23.9	1.1	0.3	0.0
	18.6	11.9	6.7	2.2	4.3	0.2	0.0	0.0
	81.4	50.0	31.3	10.4	19.6	0.9	0.3	0.0

Table 7

State Aggregate for Minorities and Women
1980 Participation Rates for the High Tech Occupations by Race, Sex and National Origin

Texas

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
Number	221,125	157,331	63,794	25,590	31,634	5,602	740	228
	144,833	110,408	34,425	11,680	18,505	3,616	450	174
	76,292	46,923	29,369	13,910	13,129	1,986	290	54
Percent	100.0	71.2	28.8	11.6	14.3	2.5	0.3	0.1
	65.5	49.9	15.6	5.3	8.4	1.6	0.2	0.1
	34.5	21.2	13.3	6.3	5.9	0.9	0.1	0.0

Table 8-Page 1

Texas

1980 Participation Rates for Each High Tech Occupation by Race, Sex and National Origin

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
Electrical and Electronic Assemblers								
	76,203	39,049	37,154	15,684	19,066	2,032	244	128
Number	39,351	21,597	17,754	6,563	10,237	751	118	85
	36,852	17,452	19,400	9,121	8,829	1,281	126	43
	100.0	51.6	48.8	20.6	25.0	2.7	0.3	0.2
Percent	51.1	28.3	23.3	8.6	13.4	1.0	0.2	0.1
	48.4	22.9	25.5	12.0	11.6	1.7	0.2	0.1
Computer Programmers								
	30,785	24,548	6,237	2,546	2,711	899	65	16
Number	15,732	13,247	2,485	853	989	603	24	16
	15,053	11,301	3,752	1,693	1,722	296	41	0
	100.0	79.7	20.3	8.3	8.8	2.9	0.2	0.1
Percent	51.1	43.0	8.1	2.8	3.2	2.0	0.1	0.1
	48.9	36.7	12.2	5.5	5.6	1.0	0.1	0.0

Table 8-Page 2

Texas

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
Computer Operators								
	28,618	20,830	7,788	3,428	3,669	568	100	23
Number	12,165	8,682	3,483	1,363	1,744	318	46	12
	16,453	12,148	4,305	2,065	1,925	250	54	11
	100.0	72.8	27.2	12.0	12.8	2.0	0.3	0.1
Percent	42.5	30.3	12.2	4.8	6.1	1.1	0.2	0.0
	57.5	42.4	15.0	7.2	6.7	0.9	0.2	0.0
Electrical Engineers								
	20,862	18,554	2,308	578	961	688	60	21
Number	19,685	17,616	2,069	451	883	654	60	21
	1,177	938	239	127	78	34	0	0
	100.0	88.9	11.1	2.8	4.6	3.3	0.3	0.1
Percent	94.4	84.4	9.9	2.2	4.2	3.1	0.3	0.1
	5.6	4.5	1.1	0.6	0.4	0.2	0.0	0.0

Table 8-Page 3

Texas

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
Electrical and Electronic Technicians								
Number	20,028	16,587	3,441	1,421	1,618	306	90	6
	17,419	14,716	2,703	958	1,406	280	53	6
	2,609	1,871	738	463	212	26	37	0
Percent	100.0	82.8	17.2	7.1	8.1	1.5	0.4	0.0
	87.0	73.5	13.5	4.8	7.0	1.4	0.3	0.0
	13.0	9.3	3.7	2.3	1.1	0.1	0.1	0.2
0.0								
Data Processing Machine Mechanics								
Number	11,269	8,502	2,767	661	1,948	99	59	0
	10,815	8,182	2,633	633	1,856	85	59	0
	454	320	134	28	92	14	0	0
Percent	100.0	75.4	24.6	5.9	17.3	0.9	0.5	0.0
	96.0	72.6	23.4	5.6	16.5	0.8	0.5	0.0
	4.0	2.8	1.2	0.2	0.8	0.1	0.0	0.0

Table 8-Page 4

Texas

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
				Computer Systems Analysts				
Number	11,134	9,886	1,248	352	500	328	68	0
	8,999	8,093	906	182	416	266	42	0
	2,135	1,793	342	170	84	62	26	0
Percent	100.0	88.8	11.2	3.2	4.5	2.9	0.6	0.0
	80.8	72.7	8.1	1.6	3.7	2.4	0.4	0.0
	19.2	16.1	3.1	1.5	0.8	0.6	0.2	0.0
				Industrial Engineers				
Number	11,070	9,724	1,346	458	648	187	33	20
	10,169	9,047	1,122	322	583	170	27	20
	901	677	224	136	65	17	6	0
Percent	100.0	87.8	12.2	4.1	5.9	1.7	0.3	0.2
	91.9	81.7	10.1	2.9	5.3	1.5	0.2	0.2
	8.1	6.1	2.0	1.2	0.6	0.2	0.1	0.0

Table 8-Page 5

Texas

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
Mechanical Engineers								
Number	10,330	9,171	1,159	271	358	495	21	14
	10,162	9,020	1,142	260	358	489	21	14
	168	151	17	11	0	6	0	0
Percent	100.0	88.8	11.2	2.6	3.5	4.8	0.2	0.1
	98.4	87.3	11.1	2.5	3.5	4.7	0.2	0.1
	1.6	1.5	0.2	0.1	0.0	0.1	0.0	0.0
Peripheral EDP Equipment Operators								
Number	826	480	346	191	155	0	0	0
	336	208	128	95	33	0	0	0
	490	272	218	96	122	0	0	0
Percent	100.0	58.1	41.9	23.1	18.8	0.0	0.0	0.0
	40.7	25.2	15.5	11.5	4.0	0.0	0.0	0.0
	59.3	32.9	26.4	11.6	14.8	0.0	0.0	0.0

Table 9

State Aggregate for Minorities and Women
1980 Participation Rates for the High Loss Occupations by Race, Sex and National Origin

Texas

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
Number	424,177	248,324	175,853	66.682	105,210	2,406	1,046	509
	247,533	150,985	96,548	26,752	67,999	891	601	305
	176,644	97,339	79,305	39,930	37,211	1,515	445	204
Percent	100.0	58.5	41.5	15.7	24.8	0.6	0.2	0.1
	58.4	35.6	22.8	6.3	16.0	0.2	0.1	0.1
	41.6	22.9	18.7	9.4	8.8	0.4	0.1	0.0

Table 10-Page 1

Texas

1980 Participation Rates for Each High Loss Occupation by Race, Sex and National Origin

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
Farm Laborers								
	175,246	73,816	101,430	26,210	73,614	874	469	263
Number	131,643	54,085	77,558	19,546	56,989	484	327	212
	43,603	19,731	23,872	6,664	16,625	390	142	51
	100.0	42.1	57.9	15.0	42.0	0.5	0.3	0.2
Percent	75.1	30.9	44.3	11.2	32.5	0.3	0.2	0.1
	24.9	11.3	13.6	3.8	9.5	0.2	0.1	0.0
Farmers, Owners and Tenants								
	70,798	66,265	4,533	940	3,386	92	59	56
Number	64,603	60,421	4,182	887	3,127	75	45	48
	6,195	5,844	351	53	259	17	14	8
	100.0	93.6	6.4	1.3	4.8	0.1	0.1	0.1
Percent	91.2	85.3	5.9	1.3	4.4	0.1	0.1	0.1
	8.8	8.3	0.5	0.1	0.4	0.0	0.0	0.0

Table 10-Page 2

Texas

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
	Compositors and Typesetters							
	50,965	35,195	15,770	6,810	7,991	789	137	43
Number	13,883	10,185	3,698	1,134	2,333	157	59	15
	37,082	25,010	12,072	5,676	5,658	632	78	28
	100.0	69.1	30.9	13.4	15.7	1.5	0.3	0.1
Percent	27.2	20.0	7.3	2.2	4.6	0.3	0.1	0.0
	72.8	49.1	23.7	11.1	11.1	1.2	0.2	0.1
	Secondary School Teachers							
	50,302	40,460	9,842	4,807	4,605	213	173	44
Number	19,601	15,519	4,082	1,770	2,157	73	82	0
	30,701	24,941	5,760	3,037	2,448	140	91	44
	100.0	80.4	19.6	9.6	9.2	0.4	0.3	0.1
Percent	39.0	30.9	8.1	3.5	4.3	0.1	0.2	0.0
	61.0	49.6	11.5	6.0	4.9	0.3	0.2	0.1

Table 10-Page 3

Texas

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
				Maids and Servants, Private				
Number	34,155	5,283	28,872	20,320	8,265	193	64	30
	1,394	431	963	643	307	6	7	0
	32,761	4,852	27,909	19,677	7,958	187	57	30
Percent	100.0	15.5	84.5	59.5	24.2	0.6	0.2	0.1
	4.1	1.3	2.8	1.9	0.9	0.0	0.0	0.0
	95.9	14.2	81.7	57.6	23.3	0.5	0.2	0.1
				Teachers, College				
Number	18,745	15,968	2,777	1,013	1,574	112	57	21
	7,571	6,383	1,188	332	744	65	34	13
	11,174	9,585	1,589	681	830	47	23	8
Percent	100.0	85.2	14.8	5.4	8.4	0.6	0.3	0.1
	40.4	34.1	6.3	1.8	4.0	0.3	0.2	0.1
	59.6	51.1	8.5	3.6	4.4	0.3	0.1	0.0

Table 10-Page 4

Texas

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
Taxi Drivers								
	10,283	4,865	5,418	2,759	2,535	39	62	23
Numbers	8,568	3,829	4,739	2,340	2,304	31	47	17
	1,715	1,036	679	419	231	8	15	6
	100.0	47.3	52.7	26.8	24.7	0.4	0.6	0.2
Percent	83.3	37.2	46.1	22.8	22.4	0.3	0.5	0.2
	16.7	10.1	6.6	4.1	2.2	0.1	0.1	0.1
Child Care Workers, Private								
	8,519	5,533	2,986	1,168	1,710	71	14	23
Number	165	119	46	26	20	0	0	0
	8,354	5,414	2,940	1,142	1,690	71	14	23
	100.0	64.9	35.1	13.7	20.1	0.8	0.2	0.3
Percent	1.9	1.4	0.5	0.3	0.2	0.0	0.0	0.0
	98.1	63.6	34.5	13.4	19.8	0.8	0.2	0.3

Table 10-Page 5

Texas

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
				Housekeepers, Private House				
	5,164	939	4,225	2,655	1,530	23	11	6
Number	105	13	92	74	18	0	0	0
	5,059	926	4,133	2,581	1,512	23	11	6
	100.0	18.2	81.8	51.4	29.6	0.4	0.2	0.1
Percent	2.0	0.3	1.8	1.4	0.3	0.0	0.0	0.0
	98.0	17.9	80.0	50.0	29.3	0.4	0.2	0.1

Illinois

Total Employed Civilian Labor Force in 1980

Refer to Tables 4 and 4.5.

√ 5.2 percent of the nation's CLF was employed in Illinois.
√ Minority participation in Illinois' CLF (18.3 percent) was slightly higher than in the national CLF (17.8 percent).
√ Blacks' participation rate in the Illinois CLF was 11.5 percent; 2 percent greater than in the national CLF (9.5 percent).

Illinois' High Growth Occupations: 1980 Minority and Female Participation Rates

Refer to Tables 1, 4 and 5.

√ 5.3 percent of the nation's High Growth work force was employed in Illinois.
√ The High Growth occupations employed 40.7 percent of the state CLF. This was higher than the national rate.
√ Females had a higher participation rate in this category (55.8 percent) than in the state CLF (42.5 percent).
√ Minorities had a higher participation rate in the High Growth category (19.6 percent) than in the state CLF (18.3 percent).

Illinois' High Tech Occupations: 1980 Minority and Female Participation Rates

Refer to Tables 2, 4 and 7.

√ Almost 6 percent of the nation's High Tech labor force was employed in Illinois.
√ High Tech occupations employed 4.3 percent of the state CLF. This was a higher proportion than in the national CLF (3.4 percent).
√ Females had a lower participation rate in the High Tech category (40.1 percent) than in the state CLF (42.5 percent).
√ Hispanic women had twice the participation rate in the High Tech category (4.5 percent) as in the state CLF (1.8 percent).
√ Minorities had a higher participation rate in the High Tech category (23.8 percent) than in the state CLF (18.3 percent).

High Loss Occupations: 1980 Minority and Female Participation

Refer to Tables 3, 4 and 9.

- ✓ 5.2 percent of the nation's High Loss work force was employed in Illinois.
- ✓ 6.7 percent of the state CLF was employed in High Loss occupations. This was equal to the national proportion (6.7 percent).
- ✓ Males, in most groups, had higher participation rates in the High Loss category than in the state CLF.
- ✓ Minorities had a higher participation rate in this category (21.1 percent) than in the state CLF (18.3 percent).

Illinois' High Growth Occupations: 1980 Minority and Female Participation

Refer to Tables 4 and 6.

Blue-Collar Worker Supervisors

- ✓ The majority of blue-collar worker supervisors were nonminority males (73.6 percent).
- ✓ The minority male participation rate in this occupation (10.0 percent) was comparable to that in the state CLF (10.1 percent).
- ✓ All females had lower participation rates in this occupation (16.4 percent) than in the state CLF (42.5 percent).

Secretaries

- ✓ Almost 99 percent of all those working in this occupation were women.
- ✓ All females had higher participation rates in this occupation than in the state CLF.

Helpers in the Trades

- ✓ Females had a lower participation rate in this occupation (29.2 percent) than in the state CLF (42.5 percent). This difference was proportionally greatest for nonminority females (19.5 percent compared to 34.2 percent).
- ✓ Hispanic women had a two times higher participation rate in this occupation (3.8 percent) than in the state CLF (1.8 percent).
- ✓ Minority males, except Asians, had twice the participation rate in this occupation (21.5 percent) as in the state CLF (10.1 percent).

Automotive Mechanics

- ✓ Females had a lower participation rate in this occupation (33.4 percent) than in the state CLF (42.5 percent). This difference was proportionally the greatest for nonminority females.
- ✓ Both Hispanic (5.4 percent compared to 3.2 percent in the state CLF) and Asian (1.0 percent compared to 0.8 percent) women had higher participation rates in this occupation than in the state CLF.
- ✓ Both black (7.8 percent compared to 5.9 percent in the state CLF) and Hispanic males (6.4 percent compared to 3.2 percent) had higher participation rates in this occupation than in the state CLF.

Janitors and Sextons

- √ Females had a lower participation rate in this occupation (30.4 percent) than in the state CLF (42.5 percent). This difference was the greatest for nonminority and Asian women.
- √ Black males had a 2.5 times greater participation rate in this occupation (14.2 percent) than in the state CLF (5.9 percent).

High Tech: Top Three Occupations Minority and Female Participation in 1980

Refer to Tables 4 and 8.

Electrical and Electronic Assemblers

- √ Females had a higher participation rate in this occupation (52.5 percent) than in the state CLF (42.5 percent). This difference was the greatest among minority women, who composed 18.1 percent of those working in this occupation.
- √ The participation rate for Hispanic women working in this occupation (8.6 percent) was five times greater than that in the state CLF (1.8 percent).
- √ All groups of minority males, except Asians, had higher participation rates in this occupation than in the state CLF.
- √ Nonminority males had a lower participation rate in this occupation (31.8 percent) than in the state CLF (47.5 percent).

Computer Operators

- √ Males had a lower participation rate in this occupation (41.8 percent) than in the state CLF (57.5 percent). This difference was the greatest for nonminority and Hispanic males.
- √ All groups of women, except Hispanics, had higher participation rates in this occupation than in the state CLF.

Computer Programmers

- √ The number of men and women working in this occupation was approximately equal.
- √ Males had a lower participation rate in this occupation (52.0 percent) than in the state CLF (57.5 percent).
- √ Hispanic and black males had lower participation rates in this occupation than in the state CLF.
- √ Asian males had a higher participation rate in this occupation (2.8 percent) than in the state CLF (0.8 percent).

High Loss: Top Three Occupations Minority and Female Participation in 1980

Refer to Tables 4 and 10.

Farm Laborers

- ✓ Males had a higher participation rate in this occupation (66.7 percent) than in the state CLF (57.5 percent). This difference was the greatest among minorities, particularly Hispanics and American Indians.
- ✓ Minority women also had higher participation rates in this occupation (11.4 percent) than in the state CLF (8.3 percent). This difference was the greatest for Hispanic women.
- ✓ Nonminority women had a lower rate of participation in this occupation (21.9 percent) than in the state CLF (42.5 percent).

Farmers, Owners and Tenants

- ✓ Nonminority males composed an overwhelming majority of Illinois farmers, owners and tenants (92.2 percent).
- ✓ There was virtually no representation for minority males (0.4 percent) or females (0.3 percent) in this occupation.

Compositors and Typesetters

- ✓ Women had a higher participation rate in this occupation (68.7 percent) than in the state CLF (42.5 percent). This difference was the greatest for minority women.
- ✓ All male groups had lower participation rates in this occupation than in the state CLF.

Table 1

State Totals: By Occupation High Growth

Illinois

1980 State Civilian Work Force	1980 State Total: High Growth	% State Total: High Growth
5,412,533	2.204,593	40.7%

1980 National High Growth Work Force	State's Share of the National High Growth Work Force
41,504,050	5.3%

By Ranked Occupation

	Occupation	1980 Total
1.	Blue-Collar Worker Supervisors	247,987
2.	Secretaries	215,216
3.	Helpers in the Trades	210,037
4.	Automotive Mechanics	183,098
5.	Janitors and Sextons	153,597
6.	Truck Drivers	150,638
7.	Sales Clerks	128,973
8.	Elementary School Teachers	111,038
9.	General Clerks, Office	100,298
10.	Bookkeepers, Hand	100,235
11.	Cashiers	94,522
12.	Typists	91,090
13.	Waiters and Waitresses	75,619
14.	Nurses, Professional	74,278
15.	Nurse's Aides and Orderlies	67,377
16.	Accountants and Auditors	58,261
17.	Guards and Doorkeepers	57,647
18.	Kitchen Helpers	56,177
19.	Licensed Practical Nurses	18,414
20.	Food Preparation and Service Workers	10,091
	Total	2,204,593

Table 2

State Totals: By Occupation High Tech

Illinois

1980 State Civilian Work Force	1980 State Total: High Tech	% State Total: High Tech
5,412,533	234,412	4.3%

1980 National High Tech Work Force	State's Share of the National High Tech Work Force
3,945,632	5.9%

By Ranked Occupation

	Occupation	1980 Total
1.	Electrical and Electronic Assemblers	111,287
2.	Computer Operators	25,870
3.	Computer Programmers	25,702
4.	Electrical Engineers	16,148
5.	Mechanical Engineers	13,173
6.	Industrial Engineers	11,301
7.	Computer Systems Analysts	10,885
8.	Electrical and Electronic Technicians	10,878
9.	Data Processing Machine Mechanics	7,533
10.	Peripheral EDP Equipment Operators	1,635
	Total	234,412

Table 3

State Totals: By Occupation High Loss

Illinois

1980 State Civilian Work Force	1980 State Total: High Loss	% State Total: High Loss
5,412,533	365,698	6.7%
1980 National High Loss Work Force		**State's Share of the National High Loss Work Force**
7,045,465		5.2%

By Ranked Occupation

	Occupation	1980 Total
1.	Farm Laborers	157,663
2.	Farmers, Owners and Tenants	62,094
3.	Compositors and Typesetters	53,454
4.	Secondary School Teachers	45,736
5.	Teachers, College	15,903
6.	Taxi Drivers	11,548
7.	Maids and Servants, Private	10,421
8.	Childcare Workers, Private	6,676
9.	Housekeepers, Private House	2,203
	Total	365,698

Table 4

Total Employed Civilian Labor Force in 1980

Illinois

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
	5,412,533	4,421,726	990,807	623,152	271,090	83,623	8,174	4,768
Number	3,113,734	2,569,606	544,128	317,997	173,189	45,410	4,678	2,854
	2,298,799	1,852,120	446,679	305,155	95,901	38,213	3,496	1,914
	100.0	81.7	18.3	11.5	5.0	1.5	0.2	0.1
Percent	57.5	47.5	10.1	5.9	3.2	0.8	0.1	0.1
	42.5	34.2	8.3	5.6	1.8	0.7	0.1	0.0

Table 4.5

Total Employed Civilian Labor Force in 1980

National

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
	103,718,076	85,258,303	18,459,773	10,219,477	5,918,947	1,682,924	539,811	98,614
Number	59,625,553	49,633,442	9,992,111	5,161,234	3,561,059	903,321	308,962	57,535
	44,092,523	35,624,861	8,467,662	5,058,243	2,357,888	779,603	230,849	41,079
	100.0	82.2	17.8	9.9	5.7	1.6	0.5	0.1
Percent	57.5	47.9	9.6	5.0	3.4	0.9	0.3	0.1
	42.5	34.3	8.2	4.9	2.3	0.8	0.2	0.0

Table 5

State Aggregate for Minorities and Women

1980 Participation Rates for the High Growth Occupations by Race, Sex and National Origin

Illinois

	Total **Men** **Women**	**Nonminority** **Men** **Women**	**Minority** **Men** **Women**	**Black** **Men** **Women**	**Hispanic** **Men** **Women**	**Asian** **Men** **Women**	**Am/Ind** **Men** **Women**	**Other** **Men** **Women**
Number	2,204,593	1,773,535	431,058	276,476	115,958	33,258	3,463	1,903
	975,180	775,478	199,702	120,202	64,941	12,076	1,584	899
	1,229,413	998,057	231,356	156,274	51,017	21,182	1,879	1,004
Percent	100.0	80.4	19.6	12.5	5.3	1.5	0.2	0.1
	44.2	35.2	9.1	5.5	2.9	0.5	0.1	0.0
	55.8	45.3	10.5	7.1	2.3	1.0	0.1	0.0

Table 6-Page 1

1980 Participation Rates for Each High Growth Occupation by Race, Sex and National Origin

Illinois

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
Blue-Collar Worker Supervisors								
Number	247,987	216,826	31,161	18,723	8,788	3,153	324	173
	207,388	182,550	24,838	14,315	7,365	2,742	279	137
	40,599	34,276	6,323	4,408	1,423	411	45	36
Percent	100.0	87.4	12.6	7.5	3.5	1.3	0.1	0.1
	83.6	73.6	10.0	5.8	3.0	1.1	0.1	0.1
	16.4	13.8	2.5	1.8	0.6	0.2	0.0	0.0
Secretaries								
Number	215,216	192,122	23,094	15,707	5,651	1,335	280	121
	2,640	2,233	407	256	79	72	0	0
	212,576	189,889	22,687	15,451	5,572	1,263	280	121
Percent	100.0	89.3	10.7	7.3	2.6	0.6	0.1	0.1
	1.2	1.0	0.2	0.1	0.0	0.0	0.0	0.0
	98.8	88.2	10.5	7.2	2.6	0.6	0.1	0.1

Table 6-Page 2

Illinois

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
Helpers in the Trades								
	210,037	144,676	65,361	35,679	26,643	2,295	461	283
Number	148,808	103,725	45,083	24,433	18,746	1,396	319	189
	61,229	40,951	20,278	11,246	7,897	899	142	94
	100.0	68.9	31.1	17.0	12.7	1.1	0.2	0.1
Percent	70.8	49.4	21.5	11.6	8.9	0.7	0.2	0.1
	29.2	19.5	9.7	5.4	3.8	0.4	0.1	0.0
Automotive Mechanics								
	183,098	134,536	48,562	23,229	21,638	3,168	367	160
Number	121,896	94,270	27,626	14,228	11,760	1,316	230	92
	61,202	40,266	20,936	9,001	9,878	1,852	137	68
	100.0	73.5	26.5	12.7	11.8	1.7	0.2	0.1
Percent	66.6	51.5	15.1	7.8	6.4	0.7	0.1	0.1
	33.4	22.0	11.4	4.9	5.4	1.0	0.1	0.0

Table 6-Page 3
Illinois

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
				Janitors and Sextons				
	153,597	107,411	46,186	32,900	11,423	1,369	384	110
Number	106,841	75,281	31,560	21,837	8,555	876	230	62
	46,756	32,130	14,626	11,063	2,868	493	154	48
	100.0	69.9	30.1	21.4	7.4	0.9	0.3	0.1
Percent	69.6	49.0	20.5	14.2	5.6	0.6	0.1	0.0
	30.4	20.9	9.5	7.2	1.9	0.3	0.1	0.0
				Truck Drivers				
	150,638	132,346	18,292	12,813	4,862	277	296	44
Number	142,463	124,916	17,547	12,353	4,632	234	284	44
	8,175	7,430	745	460	230	43	12	0
	100.0	87.9	12.1	8.5	3.2	0.2	0.2	0.0
Percent	94.6	82.9	11.6	8.2	3.1	0.2	0.2	0.0
	5.4	4.9	0.5	0.3	0.2	0.0	0.0	0.0

Table 6-Page 4

Illinois

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
Sales Clerks								
Number	128,973	112,835	16,138	10,764	3,962	1,229	94	89
	34,622	28,912	5,710	3,554	1,572	518	18	48
	94,351	83,923	10,428	7,210	2,390	711	76	41
Percent	100.0	87.5	12.5	8.3	3.1	1.0	0.1	0.1
	26.8	22.4	4.4	2.8	1.2	0.4	0.0	0.0
	73.2	65.1	8.1	5.6	1.9	0.6	0.1	0.0
Elementary School Teachers								
Number	111,038	91,925	19,113	16,243	1,920	830	63	57
	25,220	21,912	4,008	3,227	548	185	14	34
	85,818	70,713	15,105	13,016	1,372	645	49	23
Percent	100.0	82.8	17.2	14.6	1.7	0.7	0.1	0.1
	22.7	19.1	3.6	2.9	0.5	0.2	0.0	0.0
	77.3	63.7	13.6	11.7	1.2	0.6	0.0	0.0

Table 6-Page 5

Illinois

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
				General Clerks, Office				
Number	100,298	77,866	22,432	16,349	4,356	1,533	134	60
	17,772	13,431	4,341	3,000	945	353	26	17
	82,526	64,435	18,091	13,349	3,411	1,180	108	43
Percent	100.0	77.6	22.4	16.3	4.3	1.5	0.1	0.1
	17.7	13.4	4.3	3.0	0.9	0.4	0.0	0.0
	82.3	64.2	18.0	13.3	3.4	1.2	0.1	0.0
				Bookkeepers, Hand				
Number	100,235	89,881	10,354	6,273	2,361	1,538	114	68
	10,828	9,049	1,779	977	339	418	20	25
	89,407	80,832	8,575	5,296	2,022	1,120	94	43
Percent	100.0	89.7	10.3	6.3	2.4	1.5	0.1	0.1
	10.8	9.0	1.8	1.0	0.3	0.4	0.0	0.0
	89.2	80.6	8.6	5.3	2.0	1.1	0.1	0.0

Table 6-Page 6

Illinois

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
Cashiers								
	94,522	76,215	18,307	12,980	4,190	943	92	102
Number	13,627	10,187	3,440	2,215	897	291	7	30
	80,895	66,028	14,867	10,765	3,293	652	85	72
	100.0	80.6	19.4	13.7	4.4	1.0	0.1	0.1
Percent	14.4	10.8	3.6	2.3	0.9	0.3	0.0	0.0
	85.6	69.9	15.7	11.4	3.5	0.7	0.1	0.1
Typists								
	91,090	67,069	24,021	17,942	4,085	1,770	148	76
Number	10,180	7,747	2,433	1,640	456	299	8	30
	80,910	59,322	21,588	16,302	3,629	1,471	140	46
	100.0	73.6	26.4	19.7	4.5	1.9	0.2	0.1
Percent	11.2	8.5	2.7	1.8	0.5	0.3	0.0	0.0
	88.8	65.1	23.7	17.9	4.0	1.6	0.2	0.1

Table 6-Page 7

Illinois

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
				Waiters and Waitresses				
Number	75,619	66,959	8,660	4,225	2,886	1,328	175	46
	7,479	4,617	2,862	890	1,360	593	7	12
	68,140	62,342	5,798	3,335	1,526	735	168	34
Percent	100.0	88.5	11.5	5.6	3.8	1.8	0.2	0.1
	9.9	6.1	3.8	1.2	1.8	0.8	0.0	0.0
	90.1	82.4	7.7	4.4	2.0	1.0	0.2	0.0
				Nurses, Professional				
Number	74,278	60,156	14,122	6,080	1,197	6,550	81	214
	2,721	2,123	598	266	47	264	5	16
	71,557	58,033	13,524	5,814	1,150	6,286	76	198
Percent	100.0	81.0	19.0	8.2	1.6	8.8	0.1	0.3
	3.7	2.9	0.8	0.4	0.1	0.4	0.0	0.0
	96.3	78.1	18.2	7.8	1.5	8.5	0.1	0.3

Table 6-Page 8

Illinois

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
Nurse's Aides and Orderlies								
Number	67,377	45,805	21,572	17,218	2,163	1,951	170	70
	6,636	4,119	2,517	1,811	424	262	13	7
	60,741	41,686	19,055	15,407	1,739	1,689	157	63
Percent	100.0	68.0	32.0	25.6	3.2	2.9	0.3	0.1
	9.8	6.1	3.7	2.7	0.6	0.4	0.0	0.0
	90.2	61.9	28.3	22.9	2.6	2.5	0.2	0.1
Accountants and Auditors								
Number	58,261	50,774	7,487	3,990	914	2,484	33	66
	36,342	32,697	3,645	1,618	425	1,545	15	42
	21,919	18,077	3,842	2,372	489	939	18	24
Percent	100.0	87.1	12.9	6.8	1.6	4.3	0.1	0.1
	62.4	56.1	6.3	2.8	0.7	2.7	0.0	0.1
	37.6	31.0	6.6	4.1	0.8	1.6	0.0	0.0

Table 6-Page 9

Illinois

Guards and Doorkeepers

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
Number	57,647	43,582	14,065	11,644	2,043	237	87	57
	51,292	39,350	11,942	9,788	1,815	215	67	57
	6,355	4,232	2,123	1,856	228	22	17	0
Percent	100.0	75.6	24.4	20.2	3.5	0.4	0.1	0.1
	89.0	68.3	20.7	17.0	3.1	0.4	0.1	0.1
	11.0	7.3	3.7	3.2	0.4	0.0	0.0	0.0

Kitchen Helpers

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
Number	56,177	40,661	15,516	8,241	6,183	892	101	99
	25,646	16,811	8,835	3,429	4,875	440	42	49
	30,531	23,850	6,681	4,812	1,308	452	59	50
Percent	100.0	72.4	27.6	14.7	11.0	1.6	0.2	0.2
	45.7	29.9	15.7	6.1	8.7	0.8	0.1	0.1
	54.3	42.5	11.9	8.6	2.3	0.8	0.1	0.1

Table 6-Page 10
Illinois

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
				Licensed Practical Nurses				
	18,414	13,174	5,240	4,518	419	248	55	0
Number	629	438	191	135	29	27	0	0
	17,785	12,736	5,049	4,383	390	221	55	0
	100.0	71.5	28.5	24.5	2.3	1.3	0.3	0.0
Percent	3.4	2.4	1.0	0.7	0.2	0.1	0.0	0.0
	96.6	69.2	27.4	23.8	2.1	1.2	0.3	0.0
				Food Preparation and Service Workers				
	10,091	8,716	1,375	958	274	128	7	8
Number	2,150	1,810	340	230	72	30	0	8
	7,941	6,906	1,035	728	202	98	7	0
	100.0	86.4	13.6	9.5	2.7	1.3	0.1	0.1
Percent	21.3	17.9	3.4	2.3	0.7	0.3	0.0	0.1
	78.7	68.4	10.3	7.2	2.0	1.0	0.1	0.0

Table 7

State Aggregate for Minorities and Women
1980 Participation Rates for the High Tech Occupations by Race, Sex and National Origin

Illinois

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
Number	234,421	178,577	55,835	27,192	21,007	6,972	436	228
	140,404	111,578	28,826	13,789	10,425	4,244	234	134
	94,008	66,999	27,009	13,403	10,582	2,728	202	94
Percent	100.0	76.2	23.8	11.6	9.0	3.0	0.2	0.1
	59.9	47.6	12.3	5.9	4.4	1.8	0.1	0.1
	40.1	28.6	11.5	5.7	4.5	1.2	0.1	0.0

Table 8-Page 1

1980 Participation Rates for Each High Tech Occupation by Race, Sex and National Origin

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
Electrical and Electronic Assemblers								
	111,287	73,624	37,663	17,041	17,781	2,508	228	105
Number	52,904	35,390	17,514	8,524	8,177	678	98	37
	58,383	38,234	20,149	8,517	9,604	1,830	130	68
	100.0	66.2	33.8	15.3	16.0	2.3	0.2	0.1
Percent	47.5	31.8	15.7	7.7	7.3	0.6	0.1	0.0
	52.5	34.4	18.1	7.7	8.6	1.6	0.1	0.1
Computer Operators								
	25,870	20,673	5,197	3,676	810	625	56	30
Number	10,822	8,698	2,124	1,417	387	294	15	11
	15,048	11,975	3,073	2,259	423	331	41	19
	100.0	79.9	20.1	14.2	3.1	2.4	0.2	0.1
Percent	41.8	33.6	8.2	5.5	1.5	1.1	0.1	0.0
	58.2	46.3	11.9	8.7	1.6	1.3	0.2	0.1

Table 8-Page 2

Illinois

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
Computer Programmers								
Number	25,702	21,245	4,457	2,503	725	1,149	54	26
	13,362	11,371	1,991	795	432	712	33	19
	12,340	9,874	2,466	1,708	293	437	21	7
Percent	100.0	82.7	17.3	9.7	2.8	4.5	0.2	0.1
	52.0	44.2	7.7	3.1	1.7	2.8	0.1	0.1
	48.0	38.4	9.6	6.6	1.1	1.7	0.1	0.0
Electrical Engineers								
Number	16,148	14,269	1,879	716	184	957	17	5
	15,216	13,495	1,721	602	172	925	17	5
	932	774	158	114	12	32	0	0
Percent	100.0	88.4	11.6	4.4	1.1	5.9	0.1	0.0
	94.2	83.6	10.7	3.7	1.1	5.7	0.1	0.0
	5.8	4.8	1.0	0.7	0.1	0.2	0.0	0.0

Table 8-Page 3

Illinois

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
				Mechanical Engineers				
	13,173	12,084	1,089	222	231	597	11	28
Number	12,881	11,816	1,065	209	231	586	11	28
	292	268	24	13	0	11	0	0
	100.0	91.7	8.3	1.7	1.8	4.5	0.1	0.2
Percent	97.8	89.7	8.1	1.6	1.8	4.4	0.1	0.2
	2.2	2.0	0.2	0.1	0.0	0.1	0.0	0.0
				Industrial Engineers				
	11,301	10,420	881	326	143	386	26	0
Number	10,047	9,272	775	230	143	376	26	0
	1,254	1,148	106	96	0	10	0	0
	100.0	92.2	7.8	2.9	1.3	3.4	0.2	0.0
Percent	88.9	82.0	6.9	2.0	1.3	3.3	0.2	0.0
	11.1	10.2	0.9	0.8	0.0	0.1	0.0	0.0

Table 8-Page 4

Illinois

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
Computer Systems Analysts								
Number	10,885	9,740	1,145	643	223	269	10	0
	8,179	7,396	783	432	132	219	0	0
	2,706	2,344	362	211	91	50	10	0
Percent	100.0	89.5	10.5	5.9	2.0	2.5	0.1	0.0
	75.1	67.9	7.2	4.0	1.2	2.0	0.0	0.0
	24.9	21.5	3.3	1.9	0.8	0.5	0.1	0.0
Electrical and Electronic Technicians								
Number	10,878	8,947	1,931	1,032	471	370	24	34
	9,539	7,879	1,660	841	418	343	24	34
	1,339	1,068	271	191	53	27	0	0
Percent	100.0	82.2	17.8	9.5	4.3	3.4	0.2	0.3
	87.7	72.4	15.3	7.7	3.8	3.2	0.2	0.3
	12.3	9.8	2.5	1.8	0.5	0.2	0.0	0.0

Table 8-Page 5

Illinois

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
	Data Processing Machine Mechanics							
	7,533	6,373	1,160	701	364	90	5	0
Number	6,911	5,900	1,011	621	295	90	5	0
	622	473	149	80	69	0	0	0
	100.0	84.6	15.4	9.3	4.8	1.2	0.1	0.0
Percent	91.7	78.3	13.4	8.2	3.9	1.2	0.1	0.0
	8.3	6.3	2.0	1.1	0.9	0.0	0.0	0.0
	Peripheral EDP Equipment Operators							
	1,635	1,202	433	332	75	21	5	0
Number	543	361	182	118	38	21	5	0
	1,092	841	251	214	37	0	0	0
	100.0	73.5	26.5	20.3	4.6	1.3	0.3	0.0
Percent	33.2	22.1	11.1	7.2	2.3	1.3	0.3	0.0
	66.8	51.4	15.4	13.1	2.3	0.0	0.0	0.0

Table 9

State Aggregate for Minorities and Women
1980 Participation Rates for the High Loss Occupations by Race, Sex and National Origin

Illinois

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
Number	365,698	288,593	77,105	45,288	27,053	3,880	578	306
	217,466	177,652	39,814	22,031	15,620	1,671	343	149
	148,232	110,941	37,291	23,257	11,433	2,209	235	157
Percent	100.0	78.9	21.1	12.4	7.4	1.1	0.2	0.1
	59.5	48.6	10.9	6.0	4.3	0.5	0.1	0.0
	40.5	30.3	10.2	6.4	3.1	0.6	0.1	0.0

Table 10-Page 1

1980 Participation Rates for Each High Loss Occupation by Race, Sex and National Origin

Illinois

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
Farm Laborers								
Number	157,663	109,716	47,947	24,785	21,215	1,380	356	211
	105,154	75,230	29,924	15,682	13,180	694	250	118
	52,509	34,486	18,023	9,103	8,035	686	106	93
Percent	100.0	69.6	30.4	15.7	13.5	0.9	0.2	0.1
	66.7	47.7	19.0	9.9	8.4	0.4	0.2	0.1
	33.3	21.9	11.4	5.8	5.1	0.4	0.1	0.1
Farmers, Owners and Tenants								
Number	62,094	61,826	268	69	131	42	24	2
	57,270	57,076	194	43	104	23	22	2
	4,824	4,750	74	26	27	19	2	0
Percent	100.0	99.6	0.4	0.1	0.2	0.1	0.0	0.0
	92.2	91.9	0.3	0.1	0.2	0.0	0.0	0.0
	7.8	7.6	0.1	0.0	0.0	0.0	0.0	0.0

Table 10-Page 2

Illinois

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
				Compositors and Typesetters				
	53,454	41,370	12,084	7,893	2,613	1,468	64	46
Number	16,731	14,008	2,723	1,543	744	434	2	0
	36,723	27,362	9,361	6,350	1,869	1,034	62	46
	100.0	77.4	22.6	14.8	4.9	2.7	0.1	0.1
Percent	31.3	26.2	5.1	2.9	1.4	0.8	0.0	0.0
	68.7	51.2	17.5	11.9	3.5	1.9	0.1	0.1
				Secondary School Teachers				
	45,736	41,480	4,256	3,301	636	272	33	14
Number	20,739	19,322	1,417	956	310	122	29	0
	24,997	22,158	2,839	2,345	326	150	4	14
	100.0	90.7	9.3	7.2	1.4	0.6	0.1	0.0
Percent	45.3	42.2	3.1	2.1	0.7	0.3	0.1	0.0
	54.7	48.4	6.2	5.1	0.7	0.3	0.0	0.0

Table 10-Page 3

Illinois

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
Teachers, College								
	15,903	14,123	1,780	1,102	398	249	27	4
Number	6,111	5,319	792	457	196	119	16	4
	9,792	8,804	988	645	202	130	11	0
	100.0	88.8	11.2	6.9	2.5	1.6	0.2	0.0
Percent	38.4	33.4	5.0	2.9	1.2	0.7	0.1	0.0
	61.6	55.4	6.2	4.1	1.3	0.8	0.1	0.0
Taxi Drivers								
	11,548	6,949	4,599	3,254	1,030	272	18	25
Number	10,496	6,147	4,349	3,048	987	272	17	25
	1,052	802	250	206	43	0	1	0
	100.0	60.2	39.8	28.2	8.9	2.4	0.2	0.2
Percent	90.9	53.2	37.7	26.4	8.5	2.4	0.1	0.2
	9.1	6.9	2.2	1.8	0.4	0.0	0.0	0.0

Table 10-Page 4

Illinois

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
Maids and Servants, Private								
Number	10,421	6,067	4,354	3,587	644	82	37	4
	683	345	338	237	87	7	7	0
	9,738	5,722	4,016	3,350	557	75	30	4
Percent	100.0	58.2	41.8	34.4	6.2	0.8	0.4	0.0
	6.6	3.3	3.2	2.3	0.8	0.1	0.1	0.0
	93.4	54.9	38.5	32.1	5.3	0.7	0.3	0.0
Child Care Workers, Private								
Number	6,676	5,798	878	537	246	81	14	0
	201	165	36	36	0	0	0	0
	6,475	5,633	842	501	246	81	14	0
Percent	100.0	86.8	13.2	8.0	3.7	1.2	0.2	0.0
	3.0	2.5	0.5	0.5	0.0	0.0	0.0	0.0
	97.0	84.4	12.6	7.5	3.7	1.2	0.2	0.0

Table 10-Page 5

Illinois

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
				Housekeepers, Private House				
Number	2,203	1,264	939	760	140	34	5	0
	81	40	41	29	12	0	0	0
	2,122	1,224	898	731	128	34	5	0
Percent	100.0	57.4	42.6	34.5	6.4	1.5	0.2	0.0
	3.7	1.8	1.9	1.3	0.5	0.0	0.0	0.0
	96.3	55.6	40.8	33.2	5.8	1.5	0.2	0.0

Pennsylvania

Total Employed Civilian Labor Force in 1980

Refer to Tables 4 and 4.5.

- √ Minorities represented a smaller portion of Pennsylvania's CLF (8.9 percent) than of the national CLF (17.8 percent).
- √ Hispanics had a lower participation rate in the state CLF (1.0 percent) than in the national CLF (5.7 percent). This was the greatest difference among all groups.

High Growth Occupations: 1980 Minority and Female Participation

Refer to Tables 1, 4 and 5.

- √ 40.8 percent of the state CLF was employed in High Growth occupations. This percentage was higher than the national average.
- √ Minorities had a slightly higher participation rate in the High Growth occupations (9.3 percent) than in the state CLF (8.9 percent).
- √ Women had a higher participation rate in the High Growth occupations (53.5 percent) than in the state CLF (41.3 percent).

High Tech Occupations: 1980 Minority and Female Participation

Refer to Tables 2, 4 and 7.

- √ Nearly 5 percent of the nation's High Tech labor force worked in Pennsylvania.
- √ 3.6 percent of the state CLF was employed in the ten designated High Tech occupations. This was slightly higher than the portion of the national CLF (3.4 percent) employed in this category.
- √ Nonminority females had a lower participation rate in the High Tech category (28.6 percent) than in the state CLF (37.1 percent). This was the greatest difference of all groups.
- √ Asians were the only minority group with a higher participation rate in this category (1.2 percent) than in the state CLF (0.5 percent).
- √ Nonminority males had a higher participation rate in this category (62.5 percent) than in the state CLF (54.1 percent).

High Loss Occupations: 1980 Minority and Female Participation

Refer to Tables 3, 4 and 9.

- ✓ 6.5 percent of the state CLF was employed in High Loss occupations; a percentage roughly equal to the national rate (6.7 percent).
- ✓ Females had a slightly higher participation rate in the High Loss category (42.0 percent) than in the state CLF (41.3 percent). This difference was the greatest for minority women.

High Growth: Top Five Occupations Minority and Female Participation in 1980

Refer to Tables 4 and 6.

Blue-Collar Worker Supervisors

- ✓ 80 percent of all those working in this occupation were male.
- ✓ Minorities had a lower participation rate in this occupation (5.4 percent) than in the state CLF (8.9 percent). This difference was the greatest for minority women (1.0 percent compared to 4.2 percent).
- ✓ Nonminority women also had a lower participation rate in this occupation (12.6 percent) than in the state CLF (37.1 percent).

Helpers in the Trades

- ✓ Females had a lower participation rate in this occupation (24.7 percent) than in the state CLF (41.3 percent).
- ✓ All groups of males, except Asians, had higher participation rates in this occupation than in the state CLF.

Secretaries

- ✓ 99 percent of all those working in this occupation were female.
- ✓ 93 percent of all those working in this occupation were nonminority females.
- ✓ Minority women had a slightly higher participation rate in this occupation (5.8 percent) than in the state CLF (4.2 percent).

Automotive Mechanics

- ✓ Nearly 76 percent of all those working in this occupation were male.
- ✓ Females had a lower participation rate in this occupation (24.1 percent) than in the state CLF (41.3 percent).
- ✓ Minority males had a slightly higher participation rate in this occupation (5.3 percent) than in the state CLF (4.7 percent).

Truck Drivers

- ✓ Almost 95 percent of all truck drivers in Pennsylvania were male.
- ✓ Males, both minority and nonminority (except Asians), had higher participation rates in this occupation than in the state CLF.

- ✓ Except for a small percentage of blacks (0.2 percent), there were virtually no minority women working in this occupation.

High Tech: Top Three Occupations Minority and Female Participation in 1980

Refer to Tables 4 and 8.

Electrical and Electronic Assemblers

- ✓ Females had a higher participation rate in this occupation (45.2 percent) than in the state CLF (41.3 percent). This difference was the greatest for minority women.
- ✓ Black, Hispanic and Asian males all had higher participation rates in this occupation than in the state CLF.

Computer Programmers

- ✓ Both men and women had participation rates comparable to those in the state CLF.
- ✓ Black, Hispanic and American Indian males had lower participation rates in this occupation than in the state CLF.
- ✓ Hispanic women had a lower participation rate in this occupation (0.2 percent) than in the state CLF (0.4 percent).
- ✓ Asian women had a higher participation rate in this occupation (0.8 percent) than in the state CLF (0.2 percent).

Computer Operators

- ✓ Females had a greater participation rate in this occupation (54.0 percent) than in the state CLF (4l.3 percent). This difference was the greatest for nonminority women.
- ✓ Hispanic males had a lower participation rate in this occupation (0.2 percent) than in the state CLF (0.6 percent).

High Loss: Top Three Occupations Minority and Female Participation in 1980

Farm Laborers

- ✓ Almost 68 percent of all those working in this occupation were male. Both black and Hispanic males had higher participation rates in this occupation than in the state CLF.
- ✓ Hispanics were the only females with a higher participation rate in this occupation (0.5 percent) than in the state CLF (0.4 percent).

Compositors and Typesetters

- ✓ Nearly 67 percent of this occupation was female.
- ✓ Black females had a higher participation rate in this occupation (8.1 percent) than

in the state CLF (3.6 percent). Asian females also had a higher participation rate (0.4 percent) than in the state CLF (0.2 percent).

√ Minority males had a lower participaton rate in this occupation (2.0 percent) than in the state CLF (4.7 percent).

Secondary School Teachers

√ Women had a higher participation rate in this occupation (53 percent) than in the state CLF (41.3 percent). This difference was the greatest for nonminority women.

√ All minority male groups, except American Indians, had lower participation rates in this occupation than in the state CLF.

Table 1

State Totals: By Occupation
High Growth

Pennsylvania

1980 State Civilian Work Force	1980 State Total: High Growth	% State Total: High Growth
5,306,698	2,167,497	40.8%

1980 National High Growth Work Force	State's Share of the National High Growth Work Force
41,504,050	5.2%

By Ranked Occupation

	Occupation	1980 Total
1.	Blue-Collar Worker Supervisors	244,026
2.	Helpers in the Trades	239,025
3.	Secretaries	211,487
4.	Automotive Mechanics	165,605
5.	Truck Drivers	155,863
6.	Janitors and Sextons	146,222
7.	Sales Clerks	129,704
8.	Elementary School Teachers	116,353
9.	Cashiers	88,422
10.	Typists	85,950
11.	Nurses, Professional	83,183
12.	Waiters and Waitresses	79,547
13.	Bookkeepers, Hand	76,514
14.	General Clerks, Office	73,692
15.	Nurse's Aides and Orderlies	69,694
16.	Kitchen Helpers	67,032
17.	Guards and Doorkeepers	55,484
18.	Accountants and Auditors	45,562
19.	Licensed Practical Nurses	24,301
20.	Food Preparation and Service Workers	9,831
	Total	2,167,497

Table 2

State Totals: By Occupation
High Tech

Pennsylvania

1980 State Civilian Work Force	1980 State Total: High Tech	% State Total: High Tech
5,306,698	191,934	3.6%

1980 National High Tech Work Force	State's Share of the National High Tech Work Force
3,945,632	4.86%

By Ranked Occupation

	Occupation	1980 Total
1.	Electrical and Electronic Assemblers	83,317
2.	Computer Programmers	21,065
3.	Computer Operators	19,108
4.	Electrical Engineers	14,082
5.	Industrial Engineers	13,393
6.	Mechanical Engineers	11,426
7.	Electrical and Electronic Technicians	10,863
8.	Computer Systems Analysts	9,585
9.	Data Processing Machine Mechanics	8,422
10.	Peripheral EDP Equipment Operators	673
	Total	191,934

Table 3

State Totals: By Occupation
High Loss

Pennsylvania

1980 State Civilian Work Force	1980 State Total: High Loss	% State Total: High Loss
5,306,698	346,315	6.5%

1980 National High Loss Work Force	State's Share of the National High Loss Work Force
7,045,465	4.9%

By Ranked Occupation

	Occupation	1980 Total
1.	Farm Laborers	181,244
2.	Compositors and Typesetters	46,961
3.	Secondary School Teachers	42,935
4.	Farmers, Owners and Tenants	32,718
5.	Maids and Servants, Private	14,031
6.	Teachers, College	13,494
7.	Taxi Drivers	7,698
8.	Childcare Workers, Private	5,105
9.	Housekeepers, Private House	2,129
	Total	346,315

Table 4

Total Employed Civilian Labor Force in 1980

Pennsylvania

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
Number	5,306,698	4,836,993	469,705	384,374	50,770	28,261	4,495	1,805
	3,115,490	2,868,692	246,798	195,554	31,425	16,051	2,768	1,000
	2,191,208	1,968,301	222,907	188,820	19,345	12,210	1,727	805
Percent	100.0	91.1	8.9	7.2	1.0	0.5	0.1	0.0
	58.7	54.1	4.7	3.7	0.6	0.3	0.1	0.0
	41.3	37.1	4.2	3.6	0.4	0.2	0.0	0.0

Table 4.5

Total Employed Civilian Labor Force in 1980

National

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
Number	103,718,076	85,258,303	18,459,773	10,219,477	5,918,947	1,682,924	539,811	98,614
	59,625,553	49,633,442	9,992,111	5,161,234	3,561,059	903,321	308,962	57,535
	44,092,523	35,624,861	8,467,662	5,058,243	2,357,888	779,603	203,849	41,079
Percent	100.0	82.2	17.8	9.9	5.7	1.6	0.5	0.1
	57.5	47.9	9.6	5.0	3.4	0.9	0.3	0.1
	42.5	34.3	8.2	4.9	2.3	0.8	0.2	0.0

Table 5

State Aggregate for Minorities and Women — Pennsylvania

1980 Participation Rates for the High Growth Occupations Combined by Race, Sex and National Origin

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
Number	2,167,497	1,965,442	202,055	171,225	19,537	8,807	1,892	594
	1,007,970	915,774	92,196	76,258	10,923	3,654	1,082	279
	1,159,527	1,049,668	109,859	94,967	8,614	5,153	810	315
Percent	100.0	90.7	9.3	7.9	0.9	0.4	0.1	0.0
	46.5	42.3	4.3	3.5	0.5	0.2	0.0	0.0
	53.5	48.4	5.1	4.4	0.4	0.2	0.0	0.0

Table 6-Page 1

1980 Participation Rates for Each High Growth Occupation by Race, Sex and National Origin

Pennsylvania

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
Blue-Collar Worker Supervisors								
Number	244,026	230,738	13,288	10,648	1,432	998	141	69
	210,842	200,079	10,763	8,527	1,198	876	113	49
	33,184	30,659	2,525	2,121	234	122	28	20
Percent	100.0	94.6	5.4	4.4	0.6	0.4	0.1	0.0
	86.4	82.0	4.4	3.5	0.5	0.4	0.0	0.0
	13.6	12.6	1.0	0.9	0.1	0.0	0.0	0.0
Helpers in the Trades								
Number	239,025	215,606	23,419	18,570	3,821	715	271	42
	180,044	165,516	17,528	13,934	2,939	425	202	28
	58,981	53,090	5,891	4,636	882	290	69	14
Percent	100.0	90.2	9.8	7.8	1.6	0.3	0.1	0.0
	75.3	68.0	7.3	5.8	1.2	0.2	0.1	0.0
	24.7	22.2	2.5	1.9	0.4	0.1	0.0	0.0

Table 6-Page 2

Pennsylvania

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
				Secretaries				
	211,487	199,021	12,466	10,543	1,410	347	115	51
Number	2,202	1,905	297	287	4	6	0	0
	209,285	197,116	12,169	10,256	1,406	341	115	51
	100.0	94.1	5.9	5.0	0.7	0.2	0.1	0.0
Percent	1.0	0.9	0.1	0.1	0.0	0.0	0.0	0.0
	99.0	93.2	5.8	4.8	0.7	0.2	0.1	0.0
				Automotive Mechanics				
	165,605	151,770	13,835	10,808	1,899	923	178	27
Number	125,705	117,002	8,703	6,551	1,390	592	148	22
	39,900	34,768	5,132	4,257	509	331	30	5
	100.0	96.6	8.4	6.5	1.1	0.6	0.1	0.0
Percent	75.9	70.7	5.3	4.0	0.8	0.4	0.1	0.0
	24.1	21.0	3.1	2.6	0.3	0.2	0.0	0.0

Table 6-Page 3

Pennsylvania

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
Truck Drivers								
Number	155,863	144,695	11,168	9,500	1,362	84	193	29
	147,385	136,597	10,788	9,182	1,316	78	183	29
	8,478	8,098	380	318	46	6	10	0
Percent	100.0	92.8	7.2	6.1	0.9	0.1	0.1	0.0
	94.6	87.6	6.9	5.9	0.8	0.1	0.1	0.0
	5.4	5.2	0.2	0.2	0.0	0.0	0.0	0.0
Janitors and Sextons								
Number	146,222	117,458	28,764	25,720	2,203	604	195	42
	94,297	76,628	17,669	15,711	1,452	335	136	35
	51,925	40,830	11,095	10,009	751	269	59	7
Percent	100.0	80.3	19.7	17.6	1.5	0.4	0.1	0.0
	64.5	52.4	12.1	10.7	1.0	0.2	0.1	0.0
	35.5	27.9	7.6	6.8	0.5	0.2	0.0	0.0

Table 6 - Page 4

Pennsylvania

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
Elementary School Teachers								
Number	116,353	106,620	9,733	8,555	722	333	57	66
	36,120	33,831	2,289	1,935	223	104	4	23
	80,233	72,789	7,444	6,620	499	229	53	43
Percent	100.0	91.6	8.4	7.4	0.6	0.3	0.0	0.1
	31.0	29.1	2.0	1.7	0.2	0.1	0.0	0.0
	69.0	62.6	6.4	5.7	0.4	0.2	0.0	0.0
Sales Clerks								
Number	129,704	121,794	7,910	6,497	816	497	68	32
	33,524	31,164	2,360	1,949	246	130	15	20
	96,180	90,630	5,550	4,548	570	367	53	12
Percent	100.0	93.9	6.1	5.0	0.6	0.4	0.1	0.0
	25.8	24.0	1.8	1.5	0.2	0.1	0.0	0.0
	74.2	69.9	4.3	3.5	0.4	0.3	0.0	0.0

Table 6 - Page 5

Pennsylvania

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
				Waiters and Waitresses				
Number	79,547	75,089	4,458	3,122	553	702	49	32
	5,987	5,153	834	456	145	221	9	3
	73,560	69,936	3,624	2,666	408	481	40	29
Percent	100.0	94.4	5.6	3.9	0.7	0.9	0.1	0.0
	7.5	6.5	1.0	0.6	0.2	0.3	0.0	0.0
	92.5	87.9	4.6	3.4	0.5	0.6	0.1	0.0
				Cashiers				
Number	88,422	80,789	7,633	6,305	711	506	77	34
	12,706	11,195	1,511	1,116	242	129	16	8
	75,716	69,594	6,122	5,189	469	377	61	26
Percent	100.0	91.4	8.6	7.1	0.8	0.6	0.1	0.0
	14.4	12.7	1.7	1.3	0.3	0.1	0.0	0.0
	85.6	78.7	6.9	5.9	0.5	0.4	0.1	0.0

Table 6-Page 6

Pennsylvania

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
				Typists				
Number	85,950	73,186	12,764	11,452	869	361	49	33
	9,619	8,488	1,131	939	128	57	0	7
	76,331	64,698	11,633	10,513	741	304	49	26
Percent	100.0	85.1	14.9	13.3	1.0	0.4	0.1	0.0
	11.2	9.9	1.3	1.1	0.1	0.1	0.0	0.0
	88.8	75.3	13.5	12.2	0.9	0.4	0.1	0.0
				Nurses, Professional				
Number	83,183	78,767	4,416	3,033	400	924	35	24
	2,440	2,290	150	83	29	30	8	0
	80,743	76,477	4,266	2,950	371	894	27	24
Percent	100.0	94.7	5.3	3.6	0.5	1.1	0.0	0.0
	2.9	2.8	0.2	0.1	0.0	0.0	0.0	0.0
	97.1	91.9	5.1	3.5	0.4	1.1	0.0	0.0

Table 6-Page 7

Pennsylvania

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
Bookkeepers, Hand								
	76,514	72,722	3,792	3,051	409	286	46	0
Number	9,042	8,393	649	490	85	68	6	0
	67,472	64,329	3,143	2,561	324	218	40	0
	100.0	95.0	5.0	4.0	0.5	0.4	0.1	0.0
Percent	11.8	11.0	0.8	0.6	0.1	0.1	0.0	0.0
	88.2	84.1	4.1	3.3	0.4	0.3	0.1	0.0
General Clerks, Office								
	73,692	64,832	8,860	7,946	555	259	80	20
Number	15,154	13,366	1,788	1,520	141	67	43	17
	58,538	51,466	7,072	6,426	414	192	37	3
	100.0	88.0	12.0	10.8	0.8	0.4	0.1	0.0
Percent	20.6	18.1	2.4	2.1	0.2	0.1	0.1	0.0
	79.4	69.8	9.6	8.7	0.6	0.3	0.1	0.0

Table 6-Page 8

Pennsylvania

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
Nurse's Aides and Orderlies								
Number	69,694	53,888	15,806	14,618	629	408	114	37
	9,586	7,221	2,365	2,123	146	69	27	0
	60,108	46,667	13,441	12,495	483	339	87	37
Percent	100.0	77.3	22.7	21.0	0.9	0.6	0.2	0.1
	13.8	10.4	3.4	3.0	0.2	0.1	0.0	0.0
	86.2	67.0	19.3	17.9	0.7	0.5	0.1	0.1
Guards and Doorkeepers								
Number	55,484	47,066	8,418	7,640	533	115	123	7
	51,016	43,458	7,558	6,851	478	110	119	0
	4,468	3,608	860	789	55	5	4	7
Percent	100.0	84.8	15.2	13.8	1.0	0.2	0.2	0.0
	91.9	78.3	13.6	12.3	0.9	0.2	0.2	0.0
	8.1	6.5	1.5	1.4	0.1	0.0	0.0	0.0

Table 6-Page 9

Pennsylvania

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
Accountants and Auditors								
Number	45,562	42,843	2,719	2,200	211	271	20	17
	32,527	31,171	1,356	1,048	112	164	15	17
	13,035	11,672	1,363	1,152	99	107	5	0
Percent	100.0	94.0	6.0	4.8	0.5	0.6	0.0	0.0
	71.4	68.4	3.0	2.3	0.2	0.4	0.0	0.0
	28.6	25.6	3.0	2.5	0.2	0.2	0.0	0.0
Licensed Practical Nurses								
Number	24,301	20,284	4,017	3,793	140	58	19	7
	644	465	179	155	22	0	2	0
	23,657	19,819	3,838	3,638	118	58	17	7
Percent	100.0	83.5	16.5	15.6	0.6	0.2	0.1	0.0
	2.7	1.9	0.7	0.6	0.1	0.0	0.0	0.0
	97.3	81.6	15.8	15.0	0.5	0.2	0.1	0.0

Table 6 - Page 10

Pennsylvania

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
				Kitchen Helpers				
Number	67,032	59,234	7,798	6,557	796	358	62	25
	27,547	23,446	4,101	3,263	604	177	36	21
	39,485	35,788	3,697	3,294	192	181	26	4
Percent	100.0	88.4	11.6	9.8	1.2	0.5	0.1	0.0
	41.1	35.0	6.1	4.9	0.9	0.3	0.1	0.0
	58.9	53.4	5.5	4.9	0.3	0.3	0.0	0.0
				Food Preparation Service Workers				
Number	9,831	9,040	791	667	66	58	0	0
	1,583	1,406	177	138	23	16	0	0
	8,248	7,634	614	529	43	42	0	0
Percent	100.0	92.0	8.0	6.8	0.7	0.6	0.0	0.0
	16.1	14.3	1.8	1.4	0.2	0.2	0.0	0.0
	83.9	77.7	6.2	5.4	0.4	0.4	0.0	0.0

Table 7

State Aggregate for Minorities and Women
1980 Participation Rates for the High Tech Occupations by Race, Sex and National Origin

Pennsylvania

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
Number	191,934	174,807	17,127	12,681	2,021	2,279	93	53
	129,598	120,006	9,592	6,456	1,371	1,678	55	21
	62,336	54,801	7,535	6,225	650	601	38	21
Percent	100.0	91.1	8.9	6.6	1.1	1.2	0.0	0.0
	67.5	62.5	5.0	3.4	0.7	0.9	0.0	0.0
	32.5	28.6	3.9	3.2	0.3	0.3	0.0	0.0

Table 8-Page 1

1980 Participation Rates for Each High Tech Occupation by Race, Sex and National Origin

Pennsylvania

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
Electrical and Electronic Technicians								
Number	83,317	73,621	9,696	7,553	1,407	670	51	15
	45,626	40,907	4,719	3,417	920	351	21	10
	37,691	32,714	4,977	4,136	487	319	30	5
Percent	100.0	88.4	11.6	9.1	1.7	0.8	0.1	0.0
	54.8	49.1	5.7	4.1	1.1	0.4	0.0	0.0
	45.2	39.3	6.0	5.0	0.6	0.4	0.0	0.0
Computer Programmers								
Number	21,065	19,363	1,702	1,227	107	357	6	5
	11,924	11,255	669	416	70	183	0	0
	9,141	8,108	1,033	811	37	174	6	5
Percent	100.0	91.9	8.1	5.8	0.5	1.7	0.0	0.0
	56.6	53.4	3.2	2.0	0.3	0.9	0.0	0.0
	43.4	38.5	4.9	3.8	0.2	0.8	0.0	0.0

Table 8-Page 2

Pennsylvania

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
Computer Operators								
Number	19,108	17,227	1,881	1,607	127	125	17	5
	8,796	7,911	885	756	39	70	15	5
	10,312	9,316	996	851	88	55	2	0
Percent	100.0	90.2	9.8	8.4	0.7	0.7	0.1	0.0
	46.0	41.4	4.6	4.0	0.2	0.4	0.1	0.0
	54.0	48.8	5.2	4.5	0.5	0.3	0.0	0.0
Electrical Engineers								
Number	14,082	13,347	735	324	74	331	0	6
	13,648	12,954	694	299	69	320	0	6
	434	393	41	25	5	11	0	0
Percent	100.0	94.8	5.2	2.3	0.5	2.4	0.0	0.0
	96.9	92.0	4.9	2.1	0.5	2.3	0.0	0.0
	3.1	2.8	0.3	0.2	0.0	0.1	0.0	0.0

Table 8 - Page 3

Pennsylvania

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
				Industrial Engineers				
Number	13,393	12,911	482	267	47	162	0	6
	12,510	12,055	455	254	47	154	0	0
	883	856	27	13	0	8	0	6
Percent	100.0	96.4	3.6	2.0	0.4	1.2	0.0	0.0
	93.4	90.0	3.4	1.9	0.4	1.1	0.0	0.0
	6.6	6.4	0.2	0.1	0.0	0.1	0.0	0.0
				Mechanical Engineers				
Number	11,426	10,767	659	193	55	409	0	2
	11,254	10,607	647	181	55	409	0	2
	172	160	12	12	0	0	0	0
Percent	100.0	94.2	5.8	1.7	0.5	3.6	0.0	0.0
	98.5	92.8	5.7	1.6	0.5	3.6	0.0	0.0
	1.5	1.4	0.1	0.1	0.0	0.0	0.0	0.0

Table 8-Page 4

Pennsylvania

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
Electrical and Electronic Technicians								
Number	10,863	10,067	796	638	79	71	6	2
	9,921	9,267	654	510	65	71	6	2
	942	800	142	128	14	0	0	0
Percent	100.0	92.7	7.3	5.9	0.7	0.7	0.1	0.0
	91.3	85.3	6.0	4.7	0.6	0.7	0.1	0.0
	8.7	7.4	1.3	1.2	0.1	0.0	0.0	0.0
Computer Systems Analysts								
Number	9,585	8,945	640	455	28	137	13	7
	7,519	7,073	446	300	23	103	13	7
	2,066	1,872	194	155	5	34	0	0
Percent	100.0	93.3	6.7	4.7	0.3	1.4	0.1	0.1
	78.4	73.8	4.7	3.1	0.2	1.1	0.1	0.1
	21.6	19.5	2.0	1.6	0.1	0.4	0.0	0.0

Table 8 - Page 5

Pennsylvania

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
Data Processing Machine Mechanics								
Number	8,422	8,000	422	333	72	17	0	0
	8,170	7,790	380	297	66	17	0	0
	252	210	42	36	6	0	0	0
Percent	100.0	95.0	5.0	4.0	0.9	0.2	0.0	0.0
	97.0	92.5	4.5	3.5	0.8	0.2	0.0	0.0
	3.0	2.5	0.5	0.4	0.1	0.0	0.0	0.0
Peripheral EDP Equipment Operators								
Number	673	559	114	84	25	0	0	5
	230	187	43	26	17	0	0	0
	443	372	71	58	8	0	0	5
Percent	100.0	83.1	16.9	12.5	3.7	0.0	0.0	0.7
	34.2	27.8	6.4	3.9	2.5	0.0	0.0	0.0
	65.8	55.3	10.5	8.6	1.2	0.0	0.0	0.7

Table 9

State Aggregate for Minorities and Women
1980 Participation Rates for the High Loss Occupations by Race, Sex and National Origin

Pennsylvania

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
Number	346,315	309,564	36,751	29,429	5,767	1,183	277	95
	200,941	182,803	18,138	13,302	4,114	495	185	42
	145,374	126,761	18,613	16,127	1,653	688	92	53
Percent	100.0	89.4	10.6	8.5	1.7	0.3	0.1	0.0
	58.0	52.8	5.2	3.8	1.2	0.1	0.1	0.0
	42.0	36.6	5.4	4.7	0.5	0.2	0.0	0.0

Table 10-Page 1

1980 Participation Rates for Each High Loss Occupation by Race, Sex and National Origin

Pennsylvania

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
Farm Laborers								
	181,244	161,089	20,155	14,886	4,452	604	172	41
Number	123,000	108,888	14,112	10,075	3,584	292	143	18
	58,244	52,201	6,043	4,811	868	312	29	23
	100.0	88.9	11.1	8.2	2.5	0.3	0.1	0.0
Percent	67.9	60.1	7.8	5.6	2.0	0.2	0.1	0.0
	32.1	28.8	3.3	2.7	0.5	0.2	0.0	0.0
Compositors and Typesetters								
	46,961	41,745	5,216	4,614	345	232	20	5
Number	15,668	14,721	947	799	95	53	0	0
	31,293	27,024	4,269	3,815	250	179	20	5
	100.0	88.9	11.1	9.8	0.7	0.5	0.0	0.0
Percent	33.4	31.3	2.0	1.7	0.2	0.1	0.0	0.0
	66.6	57.5	9.1	8.1	0.5	0.4	0.0	0.0

Table 10-Page 2

Pennsylvania

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
Secondary School Teachers								
Number	42,935	40,639	2,296	1,826	321	106	37	6
	20,194	19,426	768	558	144	34	26	6
	22,741	21,213	1,528	1,268	177	72	11	0
Percent	100.0	94.7	5.3	4.3	0.7	0.2	0.1	0.0
	47.0	45.2	1.8	1.3	0.3	0.1	0.1	0.0
	53.0	49.4	3.6	3.0	0.4	0.2	0.0	0.0
Farmers, Owners and Tenants								
Number	32,718	32,503	215	42	125	33	5	10
	28,893	28,705	188	39	117	17	5	10
	3,825	3,798	27	3	8	16	0	0
Percent	100.0	99.3	0.7	0.1	0.4	0.1	0.0	0.0
	88.3	87.7	0.6	0.1	0.4	0.1	0.0	0.0
	11.7	11.6	0.1	0.0	0.0	0.0	0.0	0.0

Table 10-Page 3

Pennsylvania

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
Maids and Servants, Private								
	14,031	9,036	4,995	4,737	168	60	23	7
Number	660	481	179	179	0	0	0	0
	13,371	8,555	4,816	4,558	168	60	23	7
	100.0	64.4	35.6	33.8	1.2	0.4	0.2	0.0
Percent	4.7	3.4	1.3	1.3	0.0	0.0	0.0	0.0
	95.3	61.0	34.3	32.5	1.2	0.4	0.2	0.0
Teachers, College								
	13,494	12,470	1.024	792	109	113	2	8
Number	5,642	5,190	452	315	45	84	0	8
	7,852	7,280	572	477	64	29	2	0
	100.0	92.4	7.6	5.9	0.8	0.8	0.0	0.1
Percent	41.8	38.5	3.3	2.3	0.3	0.6	0.0	0.1
	58.2	53.9	4.2	3.5	0.5	0.2	0.0	0.0

Table 10-Page 4

Pennsylvania

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
Taxi Drivers								
Number	7,698	6,146	1,552	1,390	129	15	18	0
	6,716	5,250	1,466	1,311	129	15	11	0
	982	896	86	79	0	0	7	0
Percent	100.0	79.8	20.2	18.1	1.7	0.2	0.2	0.0
	87.2	68.2	19.0	17.0	1.7	0.2	0.1	0.0
	12.8	11.6	1.1	1.0	0.0	0.0	0.1	0.0
Child Care Workers, Private								
Number	5,105	4,557	548	449	70	18	0	11
	99	93	6	6	0	0	0	0
	5,006	4,464	542	443	70	18	0	11
Percent	100.0	89.3	10.7	8.8	1.4	0.4	0.0	0.2
	1.9	1.8	0.1	0.1	0.0	0.0	0.0	0.0
	98.1	87.4	10.6	8.7	1.4	0.4	0.0	0.2

Table 10-Page 5

Pennsylvania

	Total Men Women	Nonminority Men Women	Minority Men Women	Black Men Women	Hispanic Men Women	Asian Men Women	Am/Ind Men Women	Other Men Women
				Housekeepers, Private House				
	2,129	1,379	750	693	48	2	0	7
Number	69	49	20	20	0	0	0	0
	2,060	1,330	730	673	48	2	0	7
	96.8	62.5	34.3	31.6	2.3	0.1	0.0	0.3

Part II

Outlook:
Meeting Occupational Demands in a Changing Job Market

INTRODUCTION

Concern about this country's productivity, technical creativity and development, employment problems, and ability to compete in the world market, has prompted widespread examination of the present educational system. Deficiencies in the scholastic aptitude of America's youth, and skepticism about their sufficiency of preparation for job entry has generated curricular reform in the public schools. In addition, growing recognition that present employees lack the skills to remain competitive in a job market transformed by technology has led to the creation of programs aimed at upgrading the skills of the work force. Equal employment opportunity into the next century will depend on these combined efforts by educators, policy makers, and business leaders to design programs that prepare students and workers to meet new job market demands, and the availability of this knowledge and training to all individuals.

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This chapter provides information on training, educational, and other requirements for entry into the Project 2000 High Growth and High Tech occupations. It is interesting to note that many High Growth occupations require some knowledge of computer or word processing skills, evidence that use of the newest technology has transcended the boundaries of recognized High Tech fields into the traditional work place.

The 20 High Growth and 10 High Tech occupations are reviewed in alphabetical order within each category. The descriptions include brief summaries of job responsibilities, salary levels, and sources for additional information. Qualifications and responsibilities information was obtained from several sources which included the *Occupational Outlook Handbook, 1982-1983 Edition,* and interviews with association representatives from each occupation. Salary information* was obtained from two sources: the 1983 Current Population Survey (CPS) of 60,000 households throughout the U.S., and BLS statistics from the November 1983 issue of *Employment and Earnings.*

Each section concludes with a list of suggestions on where to find additional job information. This list is not exhaustive, and we suggest that you contact the Federal Job Information Center, your state job information center, and state occupational office. Most of these offices also list current local openings.

In some cases, salary information was not available from either source, or conflicted with our expectations. A third source was used in these instances, and is noted before the salary figures.

The average Federal salary from the Office of Personnel Management is provided for some occupations.

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* Salary information is based upon CPS and BLS figures. The *first* figure stated is the occupation's average annual 1982 gross salary from the 1983 CPA. The *second* figure is the BLS average weekly gross earnings for production or non-supervisory workers during September 1983. The BLS figure is the cross-occupational average for a particular industry rather than the average for the specific occupation. This explains the discrepancies between some BLS and CPS salary figures.

High Growth

Accountants and Auditors

Job Description

Accountants gather and analyze information on financial transactions. They may be involved in a particular plan or the entire process of designing, developing, installing, operating and evaluating an organization's accounting procedures. The primary areas of specialization within the occupation are:

- ✓ Tax—These accountants compute Federal, state and local government taxes, prepare returns and advise clients on the tax advantages and disadvantages of existing and proposed business transactions.
- ✓ Cost—These accountants analyze factors which affect production and service delivery costs to advise clients on the tax advantages and disadvantages of existing proposed business transactions.
- ✓ Budget—These accountants plan, monitor and assess client's revenues and expenditures.
- ✓ Management Consultants—These accountants review a client's production, personnel selection, and decision making processes to suggest strategies to strengthen its organizational capabilities.

Auditors review individual's, governments', and business' financial statements to determine the accuracy of information. The majority of auditors are:

- ✓ Internal—These auditors work within an organization to ensure the thorough and accurate accounting of its transactions.
- ✓ Tax—These auditors work in government or private industry and evaluate tax liabilities.

Qualifications

A career in accounting or auditing demands a strong aptitude for computing and interpreting figures. The ability to communicate orally and in writing is also required since accountants and auditors meet with clients to solicit information about their financial circumstances, and provide advice. Most employers require a minimum of a bachelor's degree, and an increasing number prefer a master's degree. Computer programming skills (for example, HP3000 systems, IMAGE Database, EDP, COBOL, CICS, and TSO) are also helpful since many accountants and auditors are utilizing computers to decrease their workload, or advise clients on the use of computers for monitoring business transactions.

Beginning (paying $17,138 to $22,277) positions in accounting and auditing with the Federal government require: four years of college (including 24 semester hours in accounting or auditing) and a year's specialized experience; or two years of general and two years of specialized experience for high school graduates. Those holding a master's degree in accounting automatically qualify for entry-level positions without any experience.

A standard college curriculum which will prepare one for entry into either occupation includes courses in: the theory and practice of accounting/auditing; business law; economics; computer applications; taxation; management; mathematics; marketing; and written and oral communication.

To be certified as a public accountant (CPA), applicants must pass a test administered by their state's board of accountants. Most states require candidates to have either a bachelor's degree and two years experience, or a master's degree and one year's experience before taking the test. To renew the license, some states require completion of additional college credits to ensure that certified practitioners are keeping abreast of changes in accounting and auditing procedures.

Salary

CPS average annual 1982 gross salary for "Accountants and Auditors": $21,989.
BLS average weekly gross earnings in September 1983 for nonsupervisory workers in "Accounting, Auditing and Bookkeeping": $347.85.
Accountants and auditors (series 510) in the Federal government earned on average $32,800 (gross) as of March 31, 1983.

Some Information Sources

American Institute of Certified Public Accountants
1121 Avenue of the Americas
New York, New York 10036

National Association of Accountants
919 Third Avenue
New York, New York 10022

National Society of Public Accountants and
the Accreditation Council for Accountancy
101 North Fairfax Street
Alexandria, Virginia 22314

Institute of Internal Auditors
249 Maitland Avenue
Altamonte Springs, Florida 32701

American Assembly of Collegiate Schools of Business
11500 Olive Boulevard
Suite 142
St. Louis, Missouri 63141
(for information about educational programs)

Tax Executives Institute
1616 North Ft. Myer Drive
Fourteenth Floor
Arlington, Virginia 22209

Association of Tax Consultants
2433 Northeast Clarkamas Street
Portland, Oregon 97232

Institute for Certification of Tax Professionals
1832 Stratford Street
Pomona, California 91768

The American Association of Hispanic Certified Public Accountants
401 C Street, N.E.
Washington, D.C. 20002

National Association of Black Accountants
1642 K Street, N.W.
Washington, D.C. 20009

National Association of Minority CPA Firms
1025 Vermont Avenue, N.W.
Suite 355
Washington, D.C. 20005

Automotive Mechanics

Job Description

Mechanics repair the electrical and mechanical functions of cars and trucks. Whereas mechanics handle complex jobs such as rebuilding an engine, mechanic's aides are usually assigned the routine maintenance tasks and simple repairs. Some mechanics specialize in a particular type of repair (such as transmissions, tune-ups, exhaust systems, and the restoration of damage due to a collision) or type of motor vehicle (European, Japanese or American). While the majority work in private gas stations, department stores and automobile dealer's repair shops (all of which usually employ at most five mechanics), a portion do work for the government to repair government-owned vehicles.

Qualifications

A mechanical aptitude is what employers generally seek from applicants. Most mechanics learn their craft on the job. They begin as apprentices doing simple repairs, gradually gaining expertise which enables them to tackle major repairs. A typical apprenticeship lasts three to four years. Some acquire experience in vocational school programs or the military. Training is an on-going process during a mechanic's career, and employers frequently send their staff to training centers for the purpose of learning how new automobile models function. Mechanics can participate in a voluntary certification program administered by the National Institute for Automotive Service Excellence. Most (87 percent) entering the field in 1980 had a high school diploma or less. A third had been in school one year prior to their employment as mechanics.

Salary

CPS average annual 1982 gross earnings for "Automotive Mechanics": $13,601.
BLS average weekly gross earnings in September 1983 for nonsupervisory workers in "Auto Repair, Services and Garages": was $264.22; more specifically, $295.60 in "Automotive Repair Shops"

Some Information Sources

Automotive Service Industry Association
444 North Michigan Avenue
Chicago, Illinois 60611

Automotive Service Councils, Inc.
188 Industrial Drive
Suite 112
Elmhurst, Illinois 60126

National Automobile Dealers Association
8400 Westpark Drive
McLean, Virginia 22102

Motor Vehicle Mechanics Training Project
Southern Association of Colleges and Schools
195 Peachtree Street, N.E.
Atlanta, Georgia 30308

Blue-Collar Worker Supervisors

Job Description

These supervisors allocate job assignments to workers on production lines and in construction trades. They also make certain that the work performed is done properly and within the time schedule that management has allocated. Blue-collar worker supervisors often serve as a liaison between the rank-and-file and upper-level management. Their responsibilities may also include analyzing the costs of production, and maintaining documents on supplies and workers' time schedules. More than half work in manufacturing industries. Another 21 percent work in nondurable goods and manufactures, while the remaining 11 percent are employed in the transportation, communications and utilities industries.

Qualifications

Employers look for proven leadership qualities in applicants. For those positions requiring the supervision of union workers, employers choose those candidates familiar with union regulations governing the settlement of worker-management disputes and contract negotiations. A high school diploma or General Education Degree (GED) is considered essential by most employers. The more technical the good produced or complex the production process, the more likely that the employer will seek persons with a college education. The training programs established by the High Tech companies for supervisors prefer those who have completed some course work at a technical school or college, particularly in industrial relations, science, business administration, management and engineering. Many supervisors begin as assembly-line workers and are promoted to supervisory positions after proving their capabilities. Prior experience in the company may be an additional qualification.

Salary

CPS average annual 1982 gross earnings for "Supervisors in Production Occupations": $23,096.
BLS statistics were not available.

Some Information Sources

American Management Association
135 West 50th Street
New York, New York 10020
(Contact for a bibliography of career literature on management occupations.)

National Association of Minority Contractors
1705 DeSales Street, N.W.
Suite 404
Washington, D.C. 20036

Bookkeepers, Hand

Job Description

Bookkeepers monitor financial transactions by maintaining a journal and filing the accompanying documentation such as cancelled checks, receipts, time cards and invoices. In firms employing 100 or fewer persons, the bookkeeper usually handles the entire day-to-day accounting of the firm's expenditures and receipts as well as payroll processing, supply purchases and customer billing. Larger companies often divide the responsibilities so that each bookkeeper's tasks are highly specialized. The computer is now being used extensively to record, store and analyze an organization's finances.

Qualifications

An aptitude for math, an attentiveness to detail and systematic work habits are considered to be the main attributes of a person suited for a career in bookkeeping. Employers' needs are becoming more extensive, requiring the completion of advanced courses in business administration and principles of accounting and auditing offered at community and junior colleges. Knowledge of office procedures, and proven skills in using both 10-key adding machines and manual ledger systems (such as the cash disbursement one-write system) are some typical requirements. Expertise in using an automated data processing system (for example, the software manufactured by IBM and Digital) is particularly helpful since even small firms are following the lead of the large corporations by substituting computers for manual ledger systems.

Two years of general experience is required for entry-level positions within the Federal government (paying between $12,367 and $16,075). For higher-paying openings ($13,837 to $17,986), an additional year of specialized experience is required. The applicant must be knowledgeable about accounting policies, terminology, data codes necessary for processing transactions using an automated system, and reconciling computer-generated records with source documents.

Salary

CPS data were not available.
BLS average weekly gross earnings in September 1983 for nonsupervisory workers in "Accounting, Auditing and Bookkeeping": $347.85.
Bookkeepers and accounting clerks (series 525) employed in the Federal government earned on average $16,660 (gross) as of March 31, 1983.

Some Information Sources

See Accountants and Auditors.

Cashiers

Job Description

Cashiers are employed to record and package purchases, and receive payment. Restaurants, movie theaters, college bursar's offices, supermarkets, department stores, hotels and hospitals are a few of the many organizations which hire cashiers. More cashiers work in supermarkets and grocery stores than in any other business. About half of cashiers work part-time.

Qualifications

Educational and skill requirements are minimal, however, good math and interpersonal skills and a high school diploma or GED are helpful. Employers tend to prefer those applicants who are able to work a flexible schedule. The large department stores, restaurant franchises and supermarket chains usually provide formal, on-the-job training to teach new employees how to operate their computerized checkout systems.

Salary

CPS average annual 1982 gross salary for "Cashiers": $5,077.
BLS average weekly gross earnings in September 1983 for nonsupervisory personnel in "Department Stores" was $172.87; and $243.18 in "Grocery Stores"

Some Information Sources

National Association of Retail Grocers of the U.S.
P. O. Box 17208
Washington, D.C. 20041

United Food and Commercial Workers International Union
Suffridge Building
1775 K Street, N.W.
Washington, D.C. 20006

Clerks

Job Description

This category encompasses a broad range of administrative support positions which are responsible for limited typing, filing, paperwork processing, authorizing payment, performing computations with a calculator or computer, and operating office equipment. Positions can be highly specialized in certain industries, depending on the size of the company. In banking, for example, clerks are assigned specific duties in divisions such as trust securities, check sorting and processing, and financial data entry. Some businesses, like hotels, require clerks to work directly with clients. Word processors (for example, Lexitron, IBM, Wang and Olivetti) are being incorporated into office systems to assist clerks in preparing typed copies of handwritten drafts and to store business records.

Qualifications

Many employers hire high school graduates with clerical training for permanent positions. Qualifications vary greatly, but basic skills such as typing, shorthand, filing, arithmetic, the operation of office machines, and a basic mastery of English are typical requirements. Applicants must be familiar with general office procedures and, for some jobs, adept at composing letters.

In the Federal government, entry-level clerical jobs (paying $12,367 to $16,075) usually require applicants to have had two years of experience (one general, the other specialized), while higher-paying ($13,837 to $17,986) positions require candidates to have had an additional year of specialized experience.

Salary

CPS average annual 1982 gross salary:

- ✓ "Supervisors": $19,826
- ✓ "Financial Records Processing Occupations": $10,596
- ✓ "Mail and Message Distributing Occupations": $14,958
- ✓ "Material Recording, Scheduling, and Distributing Occupations": $12,940
- ✓ "Other Administrative Support Occupations, including Clerical": $9,642

BLS statistics were not available.

Mail and file clerks (series 305) employed by the Federal government earned an average $12,992 (gross) as of March 31, 1983.

Some Information Sources

(also see Secretaries)

The American Institute of Banking
American Bankers Association
1120 Connecticut Avenue, N.W.
Washington, D.C. 20036
(Conducts educational and training programs for bank clerks.)

Federal Court Clerks Association
U.S. Court House
New Orleans, Louisiana 70130

National Association for Court Administration
National Center for State Courts
300 Newport Avenue
Williamsburg, Virginia 23185

International Institute of Municipal Clerks
160 North Altadena Drive
Pasadena, California 91107

Elementary School Teachers

Job Description

Elementary School Teachers are responsible for teaching students basic skills in English, math, social studies and the arts. The teacher usually develops the curriculum for the class, disciplines students, administers tests, assigns homework, and monitors and grades the student's performance. In *open classrooms,* a group of teachers may share these responsibilities. Most teachers work ten months a year and are employed in public school systems. After a trial period, tenure—which gives the individual permanent status and guarantees an appeals procedure before he or she can be dismissed—is extended to teachers.

Qualifications

Every state mandates that public elementary school teachers be certified by the state's department of education. Similar certification for teachers in nonpublic schools is less frequently required. The specific requirements for certification in each state are described in *Requirements for Certification for Elementary Schools, Secondary Schools, Junior Colleges,* 48th edition, by Elizabeth H. Woellner (Chicago: University of Chicago Press, 1983). A bachelor's degree is the minimum requirement to be considered for teaching positions in elementary schools. Many school districts require the completion of graduate courses after individuals are hired to keep the teaching staff abreast of new classroom teaching methods and subject matter. The educational qualifications for advancement to positions in curriculum development or supervisors of teachers depend on the school system's size. The larger systems usually require a certificate in school administration, or a master's degree, and a minimum of five to seven years teaching experience.

Salary

CPS average annual 1982 gross salary for "Teachers, except Postsecondary": $14,263.

BLS statistics were not available.

Some Information Sources

The American Federation of Teachers
11 Dupont Circle, N.W.
Washington, D.C. 20036

National Education Association
1201 16th Street, N.W.
Washington, D.C. 20036

Food Preparation and Service Workers— Fast Food Franchises

Job Description

The greatest number of food preparation and service jobs is currently found in the fast food franchises. Many of these jobs are specialized—tending the cash register or cooking and packaging a particular food item. The majority of workers are hired on a part-time shift basis to serve breakfast, lunch and dinner customers. A small percentage participates in management training programs. One fast food company's advertisement recently sought applicants with either two years of college or experience in sales, hotel management, retail or teaching.

Qualifications

In positions requiring contact with customers, an outgoing personality and a neat appearance are essential. Employers seek those who are flexible in the times and number of hours they can work. Many states require restaurant employees to have a certification of good health. Skills are usually acquired through on-the-job training, so educational or training qualifications are minimal. However, a GED or completion of a high school or technical training program is preferred by some employers.

Salary

CPS average annual gross salary in 1982 for "Food Preparation and Service Workers:" $4,585.
BLS average weekly gross earnings in September 1983 for "Eating and Drinking Places": $113.26.
According to *Restaurants and Institutions* (November 15, 1983, page 28), the average weekly pay for commercial cooks was $209; for dishwashers, $142; and for servers, $130.

Some Information Sources

The National Institute for the Foodservice Industry
20 North Wacker Drive
Suite 2620
Chicago, Illinois 60606

National Food Service Association
P. O. Box 1932
Columbus, Ohio 43216

Guards and Doorkeepers

Job Description

Guards protect buildings, property and persons. In office buildings,some monitor entrances and exits to prevent trespassing, theft, accidents or vandalism. Some are stationed at gates surrounding construction sites to guard against vandalism and theft. Department stores hire security personnel to minimize shoplifting. One-half of all guards work in industrial security firms and guard agencies. The remaining number are employed by banks, building management companies, hotels, retail stores, utilities, schools and government.

Doorkeepers work in hotels, apartment buildings and office buildings to assist customers, residents and employees as they enter or exit the building.

Qualifications

Employers prefer candidates for both positions who have earned a high school diploma. For security guard openings, firms seek those who are physically fit, experienced with firearms, knowledgeable about first aid, and without a police record.

The qualifications the Federal government has established for security guards are: "alertness; tact; integrity; ability to learn and to apply regulations and guidelines relating to protection-security systems; ability to be firm in applying protective procedures, methods and techniques; skill in the use of firearms; emotional stability; [and] physical fitness." Candidates for entry- level positions (paying $10,097 to $12,708) are not required to have any experience while those applying for higher-paying positions are required to have one (for jobs paying $12,367 to $16,075), two (paying $13,369 to $17,383), three (paying $13,837 to $17,986), and four years of experience (paying $15,423 to $20,049).

Salary

CPS average annual 1982 gross salary for "Protective Service Occupations": $13,698.
BLS statistics were not available for the position of guard.
CPS and BLS statistics were not available for the position of doorkeeper.
Guards employed by the Federal government earn on average $13,270 (gross) as of March 31, 1983.

Some Information Sources

American Federation of Guards
4157 West Fifth Street
North 220
Los Angeles, California 90020

International Union of Security Officers
2404 Merced Street
San Leandro, California 94577

International Guards Union of America
1444 Gardiner Lane
Louisville, Kentucky 40213

Helpers in the Trades

Job Description

This category includes assistants to bricklayers, carpenters, electricians, painters and others employed in the construction industry. Helpers usually are assigned to do the least skilled tasks such as unloading and delivering materials or operating cement mixers. They often assist the journeyman in performing more exacting kinds of jobs. Some positions are tied to an apprenticeship program in which the worker advances to higher-paying, more difficult positions as he or she acquires the necessary skills.

Qualifications

The strenuous work requires candidates to be in good physical condition. Applicants must usually be 18 years old. The skilled positions in the trades require some mastery of mechanical or carpentry skills, which have been acquired through participation in vocational education programs.

Salary

CPS average annual 1982 gross salary for "Construction Laborers" was $7,178, and $7,521 for "Helpers and Miscellaneous Manual Occupations".
BLS average weekly gross salary in September 1983 for nonsupervisory workers in—

- √ "Construction": $454.80.
- √ "General Building Contractors": $399.53.
- √ "Heavy Construction Contractors": $499.34.
- √ "Special Trade Contractors": $463.98.

Some Information Sources

Laborers' International Union of North America
905 16th Street, N.W.
Washington, D.C. 20006

Laborers' Associated General Contractors' Education and Training Fund
1730 Rhode Island Avenue, N.W.
Suite 909
Washington, D.C. 20036

National Association of Minority Contractors
1705 DeSales Street, N.W.
Suite 404
Washington, D.C. 20036

AFL-CIO/Construction Trades Department
815 16th Street, N.W.
Washington, D.C. 20006

Janitors and Sextons

Job Description

Janitors work in public and private office buildings, hotels, theaters, trains and elsewhere to insure that these buildings are clean, comfortable and safe for employees and residents. Their custodial responsibilities may include painting, polishing furniture and performing elementary electrical, plumbing and carpentry jobs.

Sextons maintain a church's premises. In both jobs, workers may be required to use lightweight, electric-powered equipment to perform their responsibilities.

Qualifications

No specific skills or educational qualifications are usually specified. Some basic carpentry, electrical and plumbing skills are often preferred, as is the applicant's ability to work a flexible schedule involving night and weekend shifts.

Salary

CPS average annual 1982 gross salary for "Cleaning and Building Service Occupations, except Household": $7,123.
BLS statistics were not available.
Janitors employed by the Federal government earned on average $12,810 (gross), as of March 31, 1983.

Some Information Sources

Contact the state occupational research office.

Kitchen Helpers

Job Description

This category includes dishwashers, kitchen janitors, food preparation staff, busboys and assistants to bartenders. Kitchen helpers are employed in schools, hospitals, company-staff restaurants and commercial establishments. The workday is sometimes split between two shifts, which coincide with the breakfast, lunch or dinner trade.

Qualifications

Several states require kitchen helpers to be certified to show they are in good health. Employers look for a neat appearance and flexibility in terms of the hours that the applicant is available for work. Some employers hire kitchen helpers as apprentices to become chefs, waiters/waitresses or bartenders.

Salary

CPS annual average 1982 gross salary for "Food Preparation and Service Occupations": $4,585.
BLS average weekly gross earnings in September 1983 for nonsupervisory workers in "Eating and Drinking Places": $113.26.
According to Restaurants and Institutions (November 15, 1983, page 28) the average weekly salaries are—

- ✓ "Commercial Cook": $209
- ✓ "Commercial Dishwasher": $142
- ✓ "Commercial Server": $130
- ✓ "Noncommercial Cook": $206
- ✓ "Noncommercial Dishwasher": $177
- ✓ "Noncommercial Server": $176

Some Information Sources

National Institute for the Foodservice Industry
20 North Wacker Drive
Suite 2620
Chicago, Illinois 60606

American Society for Hospital Food Service Administrators
American Hospital Association
840 North Lake Shore Drive
Chicago, Illinois 60611

American School Food Service Association
4101 East Iliff Avenue
Denver, Colorado 80222

National Food Services Association
P.O. Box 1932
Columbus, Ohio 43216

Licensed Practical Nurses

Job Description

Licensed Practical Nurses (LPNs) are assigned to monitor and use medical equipment, to take and record a patient's blood pressure, administer certain prescribed medications, and to assist doctors in examining patients. LPNs may also feed and bathe patients. They usually work under the direction of a registered nurse (RN). About three-fifths work in hospitals; the remaining number are employed in long-term care facilities and private practitioners' offices.

Qualifications

LPNs must hold a license to practice. Candidates must have passed an examination administered by the state department of health to qualify for this license. Admission to the exam is granted only after the candidate successfully completes an accredited program in nursing, which usually lasts two years. Schools, in selecting applicants for admission, prefer those with a high school diploma, successful performance on aptitude tests and good health. The training program includes courses in human biology, patient care, pharmacology, and diagnostic procedures. According to the National League for Nursing, the program is less comprehensive than that for RNs.

Salary

CPS average annual 1982 gross salary for "Licensed Practical Nurses": $10,579.
BLS average weekly gross earnings in September 1983 for nonsupervisory workers in—

- ✓ "Health Services": $242.63
- ✓ "Offices of Physicians": $226.50
- ✓ "Nursing and Personal Care Facilities": $162.69
- ✓ "Hospitals": $281.47

Note: The BLS statistics are the average salaries for all persons who work in the particular industry. There is no distinction made in salary statistics for specific occupations within an industry. These same statistics are restated for the occupations of registered nurses and nurse's aides/orderlies. This does not mean that all three occupations earn the same salary.

Some Information Sources

Career Information Service
National League for Nursing
10 Columbus Circle
New York, New York 10009

National Association for Practical Nurse Education and Service, Inc.
254 West 31st Street
New York, New York 10001

National Federation of Licensed Practical Nurses, Inc.
250 West 57th Street
New York, New York 10106

National Black Nurses Association
P.O. Box 18358
Boston, Massachusetts 02118

National Licensed Practical Nurses Educational Foundation
P.O. Box 11038
Durham, North Carolina 27703

National Association of Hispanic Nurses
30B Briarwood Lane
Branford, Connecticut 06405

National Male Nurse Association
2309 State Street
Saginaw, Michigan 48602

Nurse's Aides and Orderlies

Job Description

The functions of nurse's aides and orderlies include taking blood pressure, assisting patients in performing their physical therapy exercises, feeding and bathing patients and taking patients' temperatures. Some may plan and coordinate patients' recreational activities. The level of complexity of the occupation's responsibilities depends on the employer's size and the degree to which the employer segments staff responsibilities to develop highly specialized positions.

Qualifications

Employers seek applicants who are in good health and flexible in their ability to work different shifts. Although employers prefer those who have some basic knowledge of health sciences and emergency health care practices, most training is done on the job. Unlike the LPNs and RNs, who must be licensed, the requirements for nurse's aides and orderlies are set by the employer. Hospitals and health care centers tend to prefer those with a high school diploma or GED.

Salary

CPS statistics were not available.

BLS average weekly gross salary for September 1983 for nonsupervisory workers in—

- √ "Health Services": $242.63.
- √ "Office of Physicians": $226.50.
- √ "Nursing and Personal Care Facilities": $162.69.
- √ "Hospitals": $281.47.

Some Information Sources

See Licensed Practical Nurses.

Registered Nurses

Job Description

Registered Nurses (RN's) perform some of the physician's tasks in his or her absence, such as monitoring and recording the patient's symptoms and progress, administering medications according to the doctor's instructions, and explaining to patients the use of medications and instruments. Two-thirds of all RNs are employed in hospitals, and the remaining number are equally divided between private long-term health care facilities, community clinics, and health practitioners' offices. RNs sometimes perform supervisory functions.

Qualifications

There are three principal kinds of training for RNs—diploma (two to three years); associate's degree (two years); and bachelor's degree (four to five years). All states and the District of Columbia mandate that prospective RNs graduate from an accredited school before they can take the state-administered examination for their license. Selection for admission to accredited nursing schools is based on academic records and performance on aptitude tests. A physical examination is also required prior to admission to the school.

The RN education program is considered to be broader and more intensive than that for LPNs. The standard curriculum includes studies in human biology and psychology, pharmacology, patient care, health care management, medical laws, and diagnostic procedures. Some programs enable students to specialize in a particular aspect of patient care, such as terminally or mentally ill patients, physical therapy and hospital administration.

Salary

CPS statistics were not available.

BLS average weekly gross earnings in September 1983 for nonsupervisory personnel in–

- √ "Health Services": $242.63.

- √ "Offices of Physicians": $226.50.
- √ "Nursing and Personal Care Facilities": $162.69.
- √ "Hospitals": $281.47.

Some Information Sources

See Licensed Practical Nurses.

Sales Clerks

Job Description

Sales Clerks explain the advantages of certain merchandise to potential customers. If necessary, they demonstrate how the merchandise operates. Sales clerks also use a cash register to record purchases, receive payment, and package the customer's items. In some stores, sales clerks take inventory, order new merchandise and stock shelves.

Qualifications

Entry into the occupation is relatively easy since education and experience requirements are minimal. Employers prefer high school graduates who are personable and adept at math. Most sales persons learn the relevant skills on the job. Stores may seek candidates with some expertise in selling appliances, furniture, rugs, and hardware. Vocational courses in merchandising, or retail sales experience gained through participation in a distributive education program clearly enhance one's job application. Advancement to retail management positions is mostly limited to those holding a college degree.

Salary

CPS average annual 1982 gross salary for "Sales Workers, Retail and Personal Services": $6,090.
BLS average weekly gross earnings in September 1983 for "Retail Trade" clerks was $171.95, and $166,99 for "General Merchandise Store" clerks.

Some Information Sources

Retail, Wholesale and Department Store Union (AFL-CIO)
30 East 29th Street
New York, New York 100016

United Food and Commercial Workers International Union (AFL-CIO)
Suffridge Building
1775 K Street, N.W.
Washington, D.C. 20006

Secretaries

Job Description

Secretaries are administrative support personnel, whose responsibilities include clerical duties, appointment scheduling, filing, stenography, drafting correspondence, and typing. In some positions, such as legal and medical secretaries, the work can be highly specialized. Most secretaries work full- time. The scope of secretarial responsibilities extends beyond that of clerk- typists to include supervisory duties. The typical secretarial position requires a general knowledge of the substantive work of the persons assisted. Secretaries serve as the principal office assistants, and organize the flow of paperwork, the filing system, travel, conferences, meetings, reports, and briefings.

Secretaries are increasingly required to use automated office systems to carry out their assignments. The importance of computers in the work place is shown by the statistic that 7 to 10 million U.S. workers—approximately 7 percent of the total workforce—use video display terminals.

Qualifications

A typing speed of 45 to 55 words per minute, shorthand skills (about 90 words per minute), and the mastery of a broad range of clerical skills are typical requirements. High school graduates of secretarial courses qualify for most positions. More specialized skills are required for the positions of court reporter, and legal, medical and statistical secretaries. Employers are showing increased preference for applicants with some college education. This trend is suggested by the fact that college-educated persons filled two of every five secretarial job openings in 1980.

The Federal government requires that applicants have experience in administrative or clerical work for entry-level (paying $13,837 to $17,986), and higher level positions.

Salary

CPS average annual 1982 gross salary for "Secretaries, Typists and Stenographers" was $10,227.
BLS statistics were not available.
Secretaries (series 318) employed in the Federal government earned, on average, $16,380 (gross) as of March 31, 1983.

Some Information Sources

Professional Secretaries International
2440 Pershing Road
Suite G10
Kansas City, Missouri 64108

International Association of Word Processing Specialists
1669 South Voss
Suite 100
Houston, Texas 77057

National Association of Educational Office Personnel
1902 Association Drive
Reston, Virginia 20911

National Association of Government Secretaries
5143 Summit Drive
Fairfax, Virginia 22030

Truck Drivers

Job Description

There are essentially two types of truck drivers—long-distance and short-haul/local. Some are assigned to regular delivery routes, while others are placed in a pool of available drivers and assigned responsibilities depending on the flow of goods to be delivered and the number of drivers available that day. Truck drivers may work with a dispatcher to plan their delivery routes and estimate the approximate driving times. Drivers also keep records on maintenance and mileage. Some trucking firms require their drivers to load and unload the truck.

Qualifications

A chauffeur's license for local truck drivers is required by most states. Long-distance drivers are required by the U.S. Department of Transportion (DOT), (which sets the minimum qualifications for drivers engaged in interstate commerce) to be at least 21 years of age, physically fit, have normal blood pressure, and have a minimum of 20/40 vision when aided or unaided by glasses. Applicants must be adept at driving the trucks the company uses. Long-distance drivers must pass a test on the Federal Motor Carrier Safety Regulations. A copy of these regulations is available from the Government Printing Office (price: $6.00; GPO Stock No. 050-001-000-2442). Mechanical aptitude and some experience in driving a forklift are additional qualifications that are attractive to employers.

Salary

CPS average annual 1982 gross salary for "Motor Vehicle Operators" was $13,845; for "Transporation Occupations except Motor Vehicles": $22,671.
BLS average weekly gross earnings in September 1983 for nonsupervisory workers in "Trucking and Trucking Terminals" was $414.96.
Under the National Motor Freight Agreement, short-haul drivers earned on average $13.26 per hour in 1983 and long-haul drivers earned on average 32.5 cents per mile.

As of January 15, 1984, medium drivers (hauling more than one ton but less than four) employed by the Federal government in the Washington, D.C. metropolitan area earned $8.64 per hour. Heavy drivers (hauling more than four tons) earned $9.24 per hour.

Some Information Sources

American Trucking Association, Inc.
or National Tank Truck Carriers Association
1616 P Street, N.W.
Washington, D.C. 20036

International Brotherhood of Teamsters, Chauffeurs, Warehousemen and Helpers of America
25 Louisiana Avenue, N.W.
Washington, D.C. 20001

National Association of Specialized Carriers
P.O. Box 331
Marietta, Georgia 30061

National Council of Independent Truckers
Box 71
Lemont, Illinois 60439

Typists

Job Description

These employees make typed copies of handwritten drafts and transcribe tape-recorded dictation. Typing is often part of the job's more general clerical duties, which include filing, photocopying, and serving as a receptionist. The standard electric typewriter is steadily being replaced by word processing machines that memorize and proofread text for basic spelling and grammatical errors. The majority of typists work in Federal, state and local government offices.

Qualifications

Employers usually require a minimum speed of 45 to 55 words per minute and excellent English skills. A growing number of employers prefer typists with word processing machine skills. A high school diploma or a GED is considered the minimum educational requirement. Applicants should have some knowledge of general office procedures such as filing and correspondence formats, and use of office equipment.

For entry-level positions in the Federal government (paying $10,097 to $12,708), applicants must have a demonstrated ability to type and a knowledge of English. For positions paying $11,017 to $14,320, candidates must have had six months of relevant experience or have completed one year of full-time study at a business, secretarial or commercial school, or at a college or junior college. Applicants for jobs paying $12,367 to $16,075 must have had one year of appropriate experience in addition to these requirements.

Salary

CPS annual average 1982 gross salary for "Secretaries, Stenographers, and Typists" was $10,227.
BLS statistics were not available.
Clerk-typists (series 322) employed by the Federal government earned on average $12,100 as of March 31, 1983.

Some Information Sources

See Secretaries.

Waiters and Waitresses

Job Description

Waiters and waitresses explain the menu to and take the orders from their customers. In some restaurants, the responsibilities are divided between several attendants—wine, entrees and desserts. In other establishments, one waiter or waitress serves the customers throughout the meal. Hospitals, companies, and long-term health care facilities also employ servers of food in addition to the franchises and other commercial restaurants.

Qualifications

Restaurants prefer those with high school diplomas, good interpersonal skills and a neat appearance. Many states require that those working in this occupation have a certification of good health. Some of the larger restaurants provide formal classroom training, but most waiters and waitresses learn their skills on the job. Employers generally prefer those applicants who have completed at least two years of high school or its equivalent.

Salary

CPS statistics were not available.
BLS average weekly gross earnings in September 1983 for nonsupervisory workers in "Eating and Drinking Places": $113.26.
According to *Restaurants and Institutions* (November 15, 1983, page 28), the average weekly salary for "Commercial Servers" was $130 and $176 for "Noncommercial Servers."

Some Information Sources

See Food Preparation and Service Workers—Fast Food Restaurants.

See also Kitchen Helpers.

High Tech

Computer Operators

Job Description

Computer operators initiate and monitor computer processing. Some operators enter data and instructions into the computer and control its functions using a console. Problems which arise during the computer's operations are usually solved by programmers and systems analysts assisted by operators. Additional responsibilities may include maintaining supplies and performing occasional routine tests to ensure that the system is working properly.

Qualifications

Employers prefer those with some knowledge of the specific system used in the business, and some relevant experience in business or government. Six out of every ten job openings in 1980 were filled by experienced workers. The fact that four out of ten persons hired had not worked in the field during the previous year, however, suggests that employers are willing to hire applicants with little or no computer training to fill entry-level positions. Computer operators must be adept at reading, interpreting, and responding correctly to the information that the computer transmits. A proficiency in computer programming and a limited mechanical aptitude are also sought by employers. Job counselors advise those seeking positions as computer operators to acquire some expertise in several of the most widely used computer systems. A high school diploma or a GED is usually required for most positions, but a certificate in computer operations is also an advantage.

Salary

CPS average annual 1982 gross salary for "Computer Equipment Operators" was $12,776.

BLS average weekly gross earnings in September 1983 for nonsupervisory workers in "Computer and Data Processing Services" was $355.13.

Computer Operators (series 332) employed in the Federal government earned on average $19,400 (gross), as of March 31, 1983.

Some Information Sources

American Federation of Information Processing Societies
1815 North Lynn Street
Arlington, Virginia 22209

National Computer Association (Information Processing)
1845 East Fremont Circle, South
Littleton, Colorado 80122

Institute for Certification of Computer Professionals
35 East Wacker Drive
Chicago, Illinois 60601

Women in Data Processing
P.O Box 8117
San Diego, California 92101

Computer Programmers

Job Description

Programmers write the instructions that computers follow to organize, store, retrieve and analyze data. For example, the programmer may write a program to calculate interest rates and type these instructions into the system. Programmers sometimes work with systems analysts to ensure that the computer's capabilities can adequately meet the program's requirements.

Qualifications

Employers require mastery of a computer language; COBALT, ICL, FORTRAN, BASIC, PASCAL, and PL-1 are some of the most frequently requested. Requirements are becoming more specialized, with a college degree in computer programmming or similar fields such as information science, mathematics and the physical sciences being increasingly sought by employers. A certificate in computer programming, awarded by the Institute for Certification of Computer Professionals, to those who have successfully passed an examination the institute administers, is considered by some in the industry to be a useful qualification.

In the Federal government, for positions paying $13,837 to $17,986, completion of a four-year course (preferably in computer science) at an accredited college is required. The more advanced positions require one year (for jobs paying $17,138 to $22,277), two years (for jobs paying $20,965 to $27,256) or three years (for jobs paying $25,366 to $32,980) of specialized experience or, as a substitute, the equivalent amount of time invested in graduate studies in computer and information sciences.

Salary

CPS statistics were not available.
BLS average weekly gross earnings in September 1983 for nonsupervisory workers in "Computer and Data Processing Services": $355.13.
Computer programmers/analysts/specialists (series 334) employed by the Federal government earned on average $32,225 (gross).

Some Information Sources

See Computer Operators.

Women in Information Processing
1000 Connecticut Avenue, N.W.
Washington, D.C. 20036

Association of Computer Programers and Analysts
11800 Sunrise Valley Drive
Suite 808
Reston, Virginia 22091

Computer Systems Analysts

Job Description

Systems analysts examine whether a firm's computer equipment is sufficient to handle their actual and projected data processing workload (for example, payroll processing). Analysts often prepare assessments which show their employers the trade-offs between the costs of using a particular computer system, and the computer capabilities the firm will gain or lose. Computer analysts may be responsible for diagnosing existing problems in a computer system and preparing recommendations to correct these problems.

Qualifications

The rapid pace of technological advancements in computers has resulted in an increasing number of employers demanding applicants have at least a bachelor's degree, and preferably a master's degree, in computer science, information systems, engineering, mathematics, accounting or business management. Computer and business experience are clear advantages. Nearly half of all those working in this occupation had transferred from other related jobs. Knowledge of several programming languages is also an advantage. Employers seek those who are knowledgeable about methods of computer software and hardware analysis, and adept at developing specifications for computer equipment needs to match particular job assignments.

For entry-level positions in the Federal government paying $13,837 to $17,986, completion of a four-year course (preferably in computer science) at an accredited college is required. The positions paying $17,138 to $22,277 require one year of specialized experience, or the equivalent amount of time invested in graduate studies in computer and information sciences. Jobs paying $20,965 to $27,256 require two years, and those paying $25,366 to $32,980 require three years of relevant experience.

Salary

CPS statistics were not available.

BLS average weekly gross earnings in September 1983 for nonsupervisory workers in "Computer and Data Processing Services" was $255.13.

Computer programmers/systems analysts employed by the Federal government earned, on average, $32,225 (gross) as of March 31, 1983.

Some Information Sources

See Computer Operators and Computer Programmers.

Data Processing Machine Mechanics

Job Description

Data processing machine mechanics diagnose the operating problems of computers and make the necessary repairs. They sometimes work with systems analysts to modify a computer to handle the firm's data processing requirements. Their responsibilities may also include periodic inspection and testing of the computer's components to ensure that the equipment is functioning properly. After repairing the equipment, mechanics usually write a report explaining the work performed and specifying the costs of parts and labor.

Qualifications

Entry-level applicants usually must have completed one to two years of post-high school training in micro-electronics and computers. Almost all employers offer on-the-job training to enable employees to acquire specific knowledge about the particular system that the company sells, leases or uses. Computer systems change rapidly, which means that mechanics usually participate each year in a training session sponsored by the manufacturer of the computer to learn the electrical and mechanical workings of new systems. Employers prefer a mechanical aptitude and good verbal and written communications skills.

Salary

CPS statistics were not available.
BLS average weekly gross earnings in September 1983 for nonsupervisory workers in "Computer and Data Processing Services" was $355.13.

Some Information Sources

See Computer Operators and Computer Programmers.

Computer and Business Equipment Manufacturer's Association
1828 L Street, N.W.
Washington, D.C. 20036

Electrical and Electronic Assemblers

Job Description

This occupation entails working on a production line to manufacture silicon chips and micro-electronics equipment. Assemblers solder components, perform tests to determine whether the products meet the manufacturer's quality control standards, and package the goods for shipment. They are often assisted in their routine tasks by robots. Some assemblers may be assigned to monitor the equipment and make simple adjustments in the way that assembly machines are functioning.

Qualifications

Most assemblers are trained on the job by the employer. Since most production lines operate around-the-clock, employers seek those who are able to work a flexible work schedule. Dexterity, and a high school diploma or GED are additional attributes that employers look for in their applicants.

Salary

Not available.

Some Information Sources

See Computer Operators and Computer Programmers.

Electrical and Electronic Engineers

Job Description

Electrical and electronic engineers design and supervise the installation of electrical power systems and their controls, as well as computer and communications systems. An increasing number are using computers to assist in the design, analysis and testing of electrical equipment. They are responsible for ensuring that their design specifications comply with Federal, state and local building codes.

Some engineers also provide cost estimates for the construction, operation and maintenance of the electrical, computer and communications systems, and are involved in reviewing the bids of potential contractors. More engineers work in the electrical and electronics field than in any other branch of the profession.

Qualifications

Most entry-level positions in engineering require a bachelor's degree. Advanced degrees are considered more essential for those pursuing a career in education than for those seeking work in commercial firms. The length of time spent in college varies from four to five years, depending on whether the curriculum alternates field experience with formal classroom instruction (a cooperative education program). In 1980, 44 percent of all those who entered engineering were recent engineering graduates. The remaining proportion had transferred from other related occupations.

Engineers whose work may affect life, health or property, or who offer their services to the public must be licensed in all 50 states and the District of Columbia. To be licensed, applicants must have earned a bachelor's degree from an accredited college, completed four years of work in the field, and passed a state-administered examination.

Salary

CPS data were not available.
The BLS average weekly gross earnings in September 1983 for nonsupervisory workers in "Engineering and Architectual Services" was $456.98.
In the Federal government, electrical engineers (series 850) earned $34,854 (gross), and electronics engineers (series 855) earned $37,600 (gross), as of March 31, 1983.

Some Information Sources

Engineering Manpower Commission of the American Association of Engineering Societies
345 East 47th Street
New York, New York 10017

National Society of Professional Engineers
2029 K Street, N.W.
Washington, D.C. 20006

National Action Council for Minorities in Engineering, Inc.
3 West 35th Street
New York, New York 10017

Society of Women Engineers
345 East 47th Street
New York, New York 10017

Electrical and Electronic Technicians

Job Description

These technicians operate, maintain and repair electrical systems and electronic equipment. Some must use testing equipment such as oscilloscopes, voltmeters and signal generators to determine what components are in need of repair or replacement. Additional responsibilities may include maintaining an inventory of parts used to make repairs and keeping records on the components that have been repaired. Most electrical and electronic technicians are employed by the broadcast industry, manufacturers of micro-electronic equipment, and computer companies.

Qualifications

Employers prefer applicants with some post-high school or post-GED program background in electrical engineering or electronics. Technicians must be able to read electrical diagrams and perform repairs using sophisticated tools. Many companies have formal programs that supplement the employee's knowledge of electrical systems and components with more advanced training. Technicians must also be aware of building codes to determine whether the installation of electrical equipment may be a potential hazard.

Salary

Not available.

Some Information Sources

See Computer Operators; Electrical Engineers;
and Data Processing Machine Mechanics.

Industrial Engineers

Job Description

Industrial engineers are concerned primarily with the relationship between humans and machines involved in the production process. They plan, design, analyze, improve and install systems that coordinate employees, materials, and equipment to manufacture goods and deliver services. They also design, maintain, and supervise quality control systems, plan finances, and analyze production costs. Computers are often used in this profession. According to the Bureau of Labor Statistics, more than two-thirds of industrial engineers work in the manufacturing industries.

Qualifications

Industrial engineers apply their knowledge and skills in math, science and engineering to specify, predict and evaluate the results from production. A bachelor's degree is the minimum requirement for most entry-level positions. Advanced degrees are considered to be more essential for college level teaching positions than for careers in private industry. Engineering majors are to take courses in the social sciences, economics, accounting, and management, in addition to the core engineering courses such as calculus, chemistry, physics, thermodynamics and fluid mechanics. Advanced training beyond college in this and other engineering fields may be sponsored by the employer in a range of programs which may include apprenticeships and formal classroom instruction. Licensing requirements are similar to those for electrical and electronic engineers.

Salary

See Electrical Engineers.

Federal government industrial engineers (series 896) earned on average $33,700, as of March 31, 1983.

Some Information Sources

See Electrical and Electronic Engineers.

Mechanical Engineers

Job Description

Mechanical engineers perform similar duties to electrical and electronic engineers, but focus on the assembly, steam-power generating, and other types of machines utilized in a plant or office building. Their responsibilities include designing and supervising the construction of the mechanical components of production lines and electrical-power plants. Some use computers in their drafting of mechanical components.

Qualifications

Employers specify the successful completion of a college program in mechanical engineering as the minimum qualification for applicants. Those applicants who have had some experience in the field before their graduation are at a definite advantage. Students can gain such experience through cooperative education and internship programs sponsored by some colleges. Licensing requirements are the same as for other types of engineers. Preference is given to those with computer skills.

Salary

See Electrical and Electronic Engineers.

Some Information Sources

See Electrical and Electronic Engineers.

Peripheral EDP Equipment Operators

Job Description

Persons in this occupation operate peripheral computer equipment such as card-to-tape and tape-to-card converters, high speed printers, and data display units which operate off-line from (meaning independent from) the central computer equipment. Operators prepare, monitor and control the equipment's functions using a console and machine controls. Additional responsibilities include maintaining supplies and recording the computer's tasks.

Qualifications

Most employees receive on-the-job training. Employers prefer applicants with skills in computer programming or some knowledge of the basic functions of computers. A high school diploma or GED is considered an essential qualification. For those firms whose computers operate around-the-clock, employers seek operators who can adjust to a flexible schedule which includes evenings and weekends.

Salary

CPS statistics were not available.
BLS average weekly gross earnings in September 1983 for nonsupervisory workers: $355.12.

Some Information Sources

See Computer Operators and Computer Programmers.

7

Educating for the Future: An Overview of Educational and Training Programs

The crisis in American public education has recently provided a focal point for discussion among educators, business leaders, policy makers, and human resource development personnel. A widely publicized connection has been drawn between the training that young people receive in elementary and secondary school, and their future employability. Business, industry and government have been concerned about the quality of education future employees are receiving because the standards set for the civilian labor force will be reflected in the quality of American products and life. Education, economic growth, marketplace competition, and national security have become irrevocably linked to one another, and together provide a rallying issue for all sectors of the country.

The future of equal employment opportunity is dependent upon the ability of educators, business leaders and policy makers to assess the employment needs of the changing job market, and design curricula which provide all students with the basic skills needed to meet these demands. In addition to educating the nation's young for employment in the next decade, greater attention must be given to developing educational and training programs which enable present employees to gain the new skills necessary to remain competitive in the changing work place. This will be an increasing need, since the aging of the baby boom generation will cause a population shift which will greatly affect the composition of the civilian labor force; the number of persons between the ages of 25 and 44 will increase, while the number between 16 and 24 will decrease. The result: the bulk of the work force will be trained for and situated in jobs that will become obsolete or require the acquisition of additional skills.

The Direction of Public Education

Reports on education[1], prepared in the last two years, have advocated the philosophy that public education in a democracy should provide students with more than just a means to earn a livelihood. They contend that public education should, first,

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provide students with an adequate preparation in English, mathematics, science and languages. Second, it should aim to help students develop an *attitude* toward learning that will enable and encourage them to seek further training and education to upgrade skills as job demands change and personal interests become more focused.

The first step toward developing this attitude is to ensure that students become competent in basic academic skills. While most recent concern about academic competency has focused on training in mathematics, science, foreign languages and computer literacy, there is a growing awareness of deficiencies in basic skills such as reading and writing. Although the 1982 Scholastic Aptitude Test (SAT) scores for admission to college showed a slight reversal of a 19-year decline, the 1983 average rose only one point in mathematics and declined one point in verbal skills.

According to a recent report by the Center for Public Resources (CPR) entitled *Basic Skills in the U.S. Work Force*, educators and business leaders hold differing views about students' adequacy of preparation to enter the work force. The survey revealed that they frequently disagree about the nature and level of basic deficiencies among high school graduates. Business leaders believe that secondary school graduates are not "adequately prepared," even in basic skills such as reading, writing, speaking/listening, reasoning, and simple computation. They also identify entry-level employees as having especially low mathematical and scientific skill levels. Many school officials, in contrast, find high school graduates to be adequately prepared in these areas.

In addition to indications that the basic competency level of students is inadequate, there is a problem attracting and retaining enough qualified teachers in subjects such as mathematics and science; areas in which the future economy will require more trained personnel. There is also the perception that there should be greater and more efficient use of technology in the classroom. At the collegiate level, engineering schools are also finding it difficult to recruit and retain high-level scientific faculty to train students.

Business and Industry Initiatives

Business and industry are concerned about the impact academic deficiencies among high school graduates will have on employability, and the ability to retain and promote within the corporate structure.[2] They have both become interested in ways to develop job-related skills such as an understanding of work values, and a proper work attitude among young employees. There is also a desire to find ways to ease the transition from school to work, and to place young trainees into unsubsidized and meaningful jobs within the private sector. According to an estimate from the American Society for Training and Development, employers spend at least $30-40 billion per year on education and training programs for their employees. This is nearly half of the $80 billion usually spent on programs at traditional institutions of higher education.

Public Education Initiatives

Education officials are also doing something about the state of education and training in this country. According to a 1980 state-by-state survey of high school graduation requirements conducted by the National Commission on Excellence, only eight states required schools to offer foreign language instruction and none required students to take the courses. Thirty-five states required just one year of mathematics, and thirty-six required just one year of science for high school graduation.

Since that survey, however, the National Science Board has contacted the fifty states for its 1983 report, *Educating Americans for the 21st Century*. This report found that more than half the states had either taken initiatives to raise high school graduation requirements in mathematics and/or science, or were awaiting increases pending legislative approval. It also found that almost all the states were in the process of increasing their employment of science and mathematics teachers. Many states had, in addition, established or were establishing commissions and state-supported technology research centers to directly address the connections between education—especially university research and development—new products for marketing, and the establishment of new industries to employ state residents and generate economic growth.

Public Sector Initiatives

Training and educating for employment is a national priority, and private sector involvement is especially encouraged. As employers are making their skills requirements better known to human resource development personnel, needs assessments of communities, industries, regions, and states are being conducted all over the country to target and match skilled persons with jobs. All sectors are joining forces in the effort to prepare a work force qualified for the future job market.

This type of joint involvement is authorized by Title VII of the Comprehensive Employment and Training Act (CETA) under its Private Sector Initiative Program. The Private Industry Council (PIC), which was started under CETA to provide training and jobs, is composed of representatives from industry, business, organized labor, grassroots organizations, and educational institutions working with CETA prime sponsors. CETA was replaced in the Fall of 1983 by the Job Training Partnership Act. This new program not only emphasizes private sector involvement, but shifts responsibility for establishing local job training agencies from the U.S. Department of Labor to the state governors. The PICs share policy and oversight responsibility for community programs with locally elected officials.

The Programs

The rest of this chapter includes a comprehensive list of current job training and education programs which were established to provide instruction in occupational areas with a future, and to assist state and regional economic development through the cultivation of growth and high technology industries. Project 2000 found the most successful education and training for employment programs to have had the following qualities:

✓ They have been of short duration.

✓ The private sector employers have been involved in all stages of program development, including curriculum design, selection of instructors and participants, and when possible, job placement after program completion.

✓ Program participants have been carefully screened and the enrollment process has included skills and aptitude testing to assure successful participation in training.

✓ A needs assessment has been done to evaluate the skill level of current jobs, and the availability of positions requiring the proposed training.

✓ The availability of sufficiently qualified program providers to implement the curriculum has been assessed.

✓ The training sites have been accessible to trainees; either they were in the trainees' neighborhoods or near public transportation.

The chapter is divided into the following six sections:

1. High Growth Programs
2. High Tech Programs
3. State and Regional Programs for Economic Development and Training
4. Programs for Minorities, Women, Youth and Older Workers
5. Secondary and Post-Secondary School Programs
6. Other Programs of Interest

The programs are targeted at specific constituencies:

✓ economically disadvantaged and minority youths

✓ pregnant teenagers

✓ teenage parents who need child support and other social service assistance to continue their education and/or earn a livelihood

✓ first-generation immigrants

✓ women who are entering or re-entering the workforce, or who are seeking training in nontraditional career areas

✓ programs for talented youth, especially minorities, in pre-collegiate institutions to develop skills in business, mathematics, science, engineering, computers and other technical areas aimed at increasing their future options

✓ displaced industrial workers needing to upgrade their skills to work with changing production technology or be retrained for other occupations

Project 2000 obtained information about the following programs from organizations' annual reports, and responses to specific questions asked. The initiatives included in this chapter represent only a few of the programs available. Most are specifically geared to the community or constituency being served, and are the result of a formal or informal needs-assessment involving: skills required by employers; the skills applicants and employees currently possess; the need and means for upgrading skills and/or retraining; the projected employment picture for a specific locality.

The following list of brief program descriptions is provided as an overview of the type of training and education available. A listing of foundations, grantmakers and associations concerned with training- and education-for-employment programs and funding is included in the appendices of this volume.

Training and Education for Employment: Selected Types of Programs

Adopt-a-School Program—This is a new form of outreach assistance which develops ties among businesses, civic or religious organizations, government agencies, and schools. A firm will typically offer curriculum and program recommendations, loans and donations of equipment, and personnel for tutoring. Representatives from the business community may also participate on school advisory committees.

Adult Basic Education—These educational programs are offered to adults who have not finished secondary school. Courses include preparation for the General Education Diploma (GED), and remedial education in mathematics, reading and writing.

Career Education—These initiatives at elementary and secondary schools are designed to emphasize work values and the career relevance of academic learning. Some model programs linking schools and work are: *Experience Based Career Education* (EBCE) and *Community Based Career Education* (CBCE), which are programs for students who desire an alternative learning experience to full-time classroom work (generally for other than economic reasons); and *Career Intern Programs* (CIP) which are targeted at the dropout or potential dropout. CIP emphasizes counseling and career planning.

Community Based Organizations (CBO)—CBOs are generally located in low-income neighborhoods. They are private, nonprofit organizations frequently administered by minority groups and women, and are targeted at communities with high unemployment.

Community Development Corporations—CDCs are nonprofit organizations which promote economic and community development in low-income neighborhoods.

Contracting for On-the-Job Instruction--This form of cooperative education involves an educational institution paying a local business to provide on-the-job training for its students (see entry for Cooperative Education).

Contract Training—Businesses contract with community-based training organizations and community colleges to provide their employees with basic skills, skills-upgrading and technical training.

Cooperative Education—These school-sponsored and supervised programs combine *in-school* and on-the-job learning experiences (see *In-School Work Experience*). Students are required to take academic courses that are related to their vocational program, and receive release-time for on-the-job experience and training.

Corporate Outreach Programs—These corporate programs for local communities include internships, summer jobs, the lending of corporate personnel to community organizations for instructional and training purposes, and loans and/or donations of office and high technology equipment.

Education-Work Experience (Also *School-Work Transition Programs*)—These are in-school youth employment training programs which are owned and financed by the private sector (see In-School Work Experience).

Information Clearinghouse/Job Resource Centers—Resource centers provide specific information on employment training and job opportunities as well as general library resources on jobs and careers.

In-School Work Experience—These programs encourage at risk students, who might otherwise drop out, to remain in school and graduate by providing them with part-time minimum wage jobs during the school year.

Job Creation Programs—Jobs are created to provide clients with short-term employment in order to improve their long-term employability opportunities.

Neighborhood Based Organization (NBO)—These are organizations located primarily in low-income neighborhoods.

Out-of-School Work Experience—This type of work experience program provides youth over 16 years of age with out-of-school employment training and opportunities aimed at increasing their potential for long-term employment.

Pre-Employment Services—Pre-employment programs are designed to develop participant's job readiness, their attitudes toward work, and provide educational training and job placement assistance.

Recurrent Education—Recurrent education alternates periods of education and training with work, in order to meet personal and employment related needs and interests throughout an individual's life. These programs include apprenticeships, extension and correspondence courses, on-the-job training, and study at colleges and technical schools.

Retraining Programs—These programs provide workers in distressed industries with new skills needed for jobs in expanding areas of employment.

Technical Assistance Programs—These initiatives provide assistance in planning, coordinating, implementing, and evaluating training for employment programs. Technical assistance often includes training for community organizers, workshops and courses in fund-raising, and leadership development tailored to an organization's specific needs.

Vocational Education—This segment of public education is responsible for preparing young students with job skills that they can use when entering the work force after graduation.

Vocational Skills Training—Classroom, on-the-job and apprenticeship training in specific occupational or vocational areas is provided for youths and adults.

Work Study—These are school sponsored and supervised employment programs in which a student spends approximately half-time in paid employment and the remaining time in the classroom. Work study, unlike other career or cooperative programs, usually does not involve any significant planning links between work and school activities.

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[1] Some of the reports are: The American Council on Education, *America's Competitive Challenge: The Need for a National Response* (Washington, D.C.: The American Council on Education, 1983); The College Board, *Academic Preparation for College: What Students Need to Know and Be Able to Do* (New York: The College Board, 1983); The National Commission of Excellence in Education, *A Nation at Risk: The Imperative for Educational Reform* (Washington, D.C.: The National Commission on Excellence in Education, April 1983); National Science Board Commission on Precollege Education in Mathematics, Science and Technology, *Educating Americans for the 21st Century* (Washington, D.C.: National Science Board Commission, 1983); Mortimer J. Adler, *The Paideia Proposal: An Educational Manifesto* (New York: Macmillan Publishing, Inc., 1982); The National Task Force on Education for Economic Growth, *Action for Excellence: A Comprehensive Plan to Improve Our Nation's Schools* (Washington, D.C.: The National Task Force on Education for Economic Growth, 1983); and The Twentieth Century Fund, *Report of the Task Force on Federal Elementary and Secondary Educational Policy* (New York: Twentieth Century Fund, 1983).

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[2] Center for Public Resources, *Basic Skills in the U.S. Work Force* (New York: Center for Public Resources, 1982), p. 30.

High Growth Programs

Action for Boston Community Development, Inc.
Shawmut Bank of Boston
And Bank of New England
Bay State Skills Corporation
101 Summer Street, Second Floor
Boston, Massachusetts 02110

Shawmut Bank of Boston and the Bank of New England joined with Action for Boston Community Development (ABCD) in sponsoring a program to train 200 persons, including economically disadvantaged and minority individuals, in clerical and basic accounting skills. The program, which ran from February 1982 to May 1983, addressed the growing needs of Boston's insurance and financial institutions for qualified entry-level clerical and accounting position applicants. Graduates are to be hired by the banks which sponsored the program and assisted in the screening and selecting of trainees.

Four training cycles, each 26 weeks in duration, were organized. New training cycles were started every 13 weeks.

Culinary Arts Training Program
Of The District Of Columbia Public Schools
Executive Director
D.C. Private Industry Council
1129 20th Street N.W.
Washington, D.C. 20036

The Culinary Arts Training Program is jointly sponsored by the Washington, D.C. Private Industry Council (PIC), D.C. Public Schools and the D.C. metropolitan-area hotel and restaurant industry. The program accepts eligible adults, 18 years of age and older, who have either a high school diploma or General Education Diploma and meet income eligibility requirements. Funds come from PIC monies, private organizations and the public school system.

The program trains adults to become cooks and chefs in local food establishments. Training includes one week of job-shadowing at a commercial kitchen, 12 weeks of basic and advanced culinary skills training provided by Hyde Park's (New York) famed Culinary Institute of America, two weeks of motivational training, and 10 weeks of on-the-job training experience which is provided by 16 local food establishments. Graduates are expected to be retained as permanent employees upon successful completion of on-the-job training.

At the first graduation in 1983, six of ten graduates were already employed, three were awaiting interviews, and one was enrolled at the Culinary Institute of America on a two-year scholarship.

Elliott Training Center
Mel Walter, Director
2141 Hunter Road
Greensburg, Pennsylvania 15601

The Elliott Training Center was established by the Elliott Company, a division of the Power Sector Group of the United Technologies Corporation. This state-of-the art training facility, opened in 1973 with federal funds, was designed to fill the shortage of skilled welders and machinists within the company. The Elliott Company, with the assistance of the National Alliance of Business, received funding from the Job Opportunities in the Business Sector (JOBS) program and CETA.

The initial group of trainees was selected from a pool of economically disadvantaged applicants. CETA, PICs, the Veterans Administration and physical rehabilitation programs initially paid for the trainees' tuition, however, some students now pay their own fee. Some companies send their employees for two main courses: welding and machining. These courses last 26 and 30 weeks, respectively, and include 220 hours of classroom theory and equipment experience. The programs are particularly important in Pennsylvania which ranks fourth in the country in metal working industries.

Prospective trainees have regular employment interviews prior to entering the program and are tested for motivation, work attitudes, and educational skills. The training facility is an industrial miniplant where trainees work eight-hour shifts, and use full-size equipment and up-to-date technology. The facility is designed to expose trainees to a disciplined work environment; training is provided by full-time Elliott Company foremen.

More than 1,500 men and women have graduated from the program, and graduates are in high demand for jobs in Pennsylvania and throughout the country.

The Elliott Training Center is also used as a teaching resource center by local high schools and colleges, and operates training programs for other companies wanting to train new employees or upgrade employee skills.

The Private Industry Council Of New York City
Director
19 Rector Street
New York, New York 10006

The Private Industry Council (PIC) of New York City was initiated in 1979 by a group of business executives and city officials. It has served approximately 10,000 trainees from 1979 through June 1982, using a combination of public, corporate and foundation funds. In 1982 alone, the PIC served 4,000 trainees and was composed of more than 65 different classroom training contracts and 50 individually tailored, on-the-job training programs.

The following three programs are part of the New York City PIC. Further information can be obtained by writing to the individual program directors at the above address.

The Private Industry Council of New York City
American Stock Exchange Program

The New York City PIC and the American Stock Exchange (AMEX) jointly sponsor a program to train participants as data clerks for the American Stock Exchange trading floor.

The first class of 10 trainees was selected by the PIC and hired by the American Stock Exchange for a five week training program. Eight of the ten individuals who went through the training program remained as entry-level clerks after its completion. A private consultant teaches trainees about investing and how to read the stock pages as part of the program.

Amex's successful program has prompted the creation of several new training programs at the New York Institute of Finance under the auspices of the PIC.

The Private Industry Council of New York City
New York Telephone Company Customer Service Training Program

This New York City PIC program, which began in 1982 to assist the New York Telephone Company, recruits employees for customer service positions.

The PIC, with the help of the telephone company and New York City Technical College screened and trained candidates to take and pass the company's entry test which, at the time, had a 20 percent pass rate. During the PIC program's first training cycle, the pass rate for its trainees was 73 percent; during the second cycle, it was 100 percent. The training program lasts six weeks and includes four weeks of test preparation and two weeks of job-effectiveness training.

The New York Telephone Company is using the PIC as a major recruitment source. A third training cycle began in May of 1983.

The Private Industry Council of New York City
Securities Operations Clerk Training Program

This four-week securities operations clerk training program, targeted at economically disadvantaged youth, provides intensive classroom instruction on the securities industry. The program includes course work on the structure of the financial work place, principal investment instruments, introduction to pricing and assessing investments, and job effectiveness skills development. The training is provided by the New York Institute of Finance.

Trainees who successfully complete the program qualify for entry positions in the operations departments of brokerage firms where securities are received, delivered and transferred.

The program is funded by the Federal government, corporations and foundations.

United Planning Organization
Bank Teller Training Program
Mr. Ernest Ward
Executive Director
1021 14th Street, N.W.
Washington, D.C. 20005

The United Planning Organization in Washington, D.C., in cooperation with local banking institutions, has designed a program which trains the un-and underemployed between the ages of 18 and 24 to qualify for entry-level employment as bank tellers. The curriculum was developed with input from the banking community, and the instructor was appointed after being recommended by participating institutions.

Training cycles are 12 weeks long and include on-the-job experience. The classroom instruction consists of general skills and remedial courses, as well as specific skills development for employment in a financial institution. There is a job referral and placement component, and participating banking institutions expect to hire program graduates when they have position openings.

Training equipment has been supplied by a local bank. The program was funded by CETA through the D.C. Department of Employment Services, however, present funding expired in the Fall of 1983.

University of Lowell/Wang Laboratories
J.D. MacDonald and Company
Armand Donati Company International, Inc.
Bay State Skills Corporation
101 Summer Street, Second Floor
Boston, Massachusetts 02110

Wang, J.D. MacDonald, and ADCI (Armand Donati Company International, Inc.), and the University of Lowell joined efforts in 1982 to train 20 individuals as foreign trade documentation specialists. The program ran from November 1982 to June 1983, and trainees were instructed in basic and advanced clerical skills, and elements of the foreign trade field. It was designed to upgrade the skills of individuals with clerical backgrounds, and to supply several Eastern Massachusetts exporting firms in the process of expanding their trade abroad with personnel trained in export documentation, foreign trade and business office skills.

Program trainees learned general business practices and specialized procedures for export trade documentation. The academic portion was held at the University of Lowell School of Management and internships were conducted at Wang Laboratories and several freight forwarding companies involved in international trade. The School of Management supplied most of the faculty; industry consultants provided instruction in the more specialized areas of export trade documentation.

Progressive Word Processing Training Program
Executive Director
Washington, D.C. Private Industry Council
1129 20th Street, N.W.
Washington, D.C. 20036

The Word Processing Training Program is a new venture sponsored by the Washington, D.C. PIC and the Progressive Word Processing Training Center, a profit-making, privately-owned facility. The six month program trains participants to work as transcribers, word processors, secretaries, and records clerks in medical offices. It includes hands-on experience and classroom instruction in word processing, medical terminology, transcription and applied anatomy. There is also an on-the-job training component. The center attempts to place its program graduates.

Washington, D.C. Private Industry Council
Nurse's Aide Program
Executive Director
1129 20th Street, N.W.
Washington, D.C. 20036

The Nurse's Aide Program is a new cooperative effort between the Washington, D.C. PIC, the National Centers for Long Term Care and the Marshall Heights Community Development Organization, Inc.

The six week intensive program consists of three weeks of classroom theory and three weeks of clinical practice at several local health facilities. The 90 trainees who successfully complete the current program will be placed in jobs at a near-finished neighborhood health care center. The new facility will need local residents to fill 150-200 positions as cooks, dieticians, janitors, administrative employees and nurse's aides.

This program is an example of training coinciding with a community development project that will provide jobs for local residents.

Washington (D.C.) Urban League
Word Processing Training Center
Alonzo Evans
1375 Missouri Avenue, N.W.
Washington, D.C. 20011

The Word Processing Training Center is a program offered by the Washington (D.C.) Urban League in cooperation with the IBM Corporation to train low-income, minimally skilled persons in word processing. In 1982, 62 of the 87 enrollees had graduated, and 39 had been placed in jobs. The program is funded by the Private Industry Council of Washington, D.C. The IBM Corporation provides an instructor, a skills training manager, and equipment-on-loan. In 1983, the curriculum was expanded to include secretarial training, and the entire program was shortened from 22 to 16 weeks. The curriculum includes instruction in word processing, office-related skills, business English, personal development and employment preparation.

High Tech Programs

Chinese American Civic Association/Honeywell Corporation
Bay State Skills Corporation
101 Summer Street, 2nd Floor
Boston, Massachusetts 02110

Honeywell Office Automation Systems, Inc., in cooperation with the Chinese American Civic Association (CACA), trained 30 Asian and Asian-American immigrants in data entry and word processing operations from October 1982 to June 1983. The program evolved because traditional industries in Boston's Chinatown were being displaced by businesses requiring a technically-trained work force. Program participants were trained for entry-level data processing positions.

The CACA conducted two four-month training cycles for participants having at least a sixth-grade level of proficiency in the English language. Trainees studied English and basic business correspondence three days per week at CACA and acquired typing skills at the Action for Boston Community Development Center. They spent an additional two days at Honeywell Office Automation Systems where they were instructed in document creation, editing, storage, page layout, document formatting, list processing, system maintenance, and the electronic mail capabilities of word processors.

The Honeywell Corporation contributed funds and instructors, and bilingual volunteers served as tutors and counselors for program trainees.

The program is scheduled to run again.

RETC Microelectronics Training Center
7606 Miramar Road
Suite 7400
San Diego, California 92126

The RETC Microelectronics Training Center is comprised of five companies that manufacture semi-conductors for computers, and trains income-eligible persons in various aspects of semi-conductor manufacturing. The three and one-half week program includes instruction in wafer processing, die attaching and wire bonding. There are also 20 hours of world-of-work orientation.

Member companies projected a need in 1982 for 300 new entry-level employees. Each company made a commitment to hire at least 50 percent of its new employees for positions as silicon wafer fabricators from the training facility.

The Training Center's facility specifications and equipment requirements were developed by Burr-Brown Research Corporation, a Tucson, Arizona manufacturer of microelectronic components and computer systems. The overall program was developed jointly by Burr-Brown and the Center for Employment Training of San Diego County.

Since December 1982, the center has been funded by the San Diego PIC, the San Diego Regional Employment and Training Consortium, and by public funds.

The San Diego County Technical Training Center, Inc.
245 Bent Street
San Marcos, California 92069

The San Diego County Technical Training Center, Inc. is a private, nonprofit, machine-tool operator/machinist training facility founded in 1980 and located in San Marcos. It is sponsored by the Regional Employment and Training Consortium (RETC); a 13 company cooperative effort in San Diego county.

Participating companies contribute 15 percent of the center's operating costs, and donate or lend state-of-the-art equipment. Public funds pay for the leasing of the building, trainee stipends and counseling services.

The 12-to-16-week program offers courses in mathematics, English, blueprint reading, and training in the use of measuring instruments. After successfully completing this phase of training, participants work in an industrial shop with more than 60 different machines worth approximately $1 million.

Program graduates enter the work force as entry-level machine-tool operators and move up to become tool and cutter grinders, jig and fixtures builders, and assemblers.

Technical Exchange Center
Director
13162 Newhope Street
Garden Grove, California 92643

The Technical Exchange Center (TEC) is a collaborative program between education and industry in Orange County which has a density of High Tech companies. The center functions as an information broker on a countywide basis between eight community colleges, four regional occupational training programs, and technologically-oriented employers.

TEC evolved as a result of the inability of companies with job openings to find skilled technical workers (in some cases, engineers were performing tasks usually done by skilled technicians). In early 1982, 250 corporate executives attended a symposium on job skills shortages. A group of these executives eventually created the center, which opened in October 1982. The primary purpose of the Technical Exchange Center is to address the county's employment and training requirements.

Initial funding for TEC came from state and local governments, and private foundations. A building was donated by a county community college. TEC will eventually become a nonprofit corporation supported by membership and user fees.

The four main goals of TEC are:

1. To serve as a clearinghouse for those in industry, education, government, and labor who are seeking to establish training programs to meet the needs of advancing technology and business expansion.

2. To promote and coordinate training resources throughout the county for new industries and existing industries in need of staff upgrading and retraining.
3. To disseminate information from center research studies to assist planners in making recommendations concerning the development, modification or deletion of programs as demands for skilled workers change. For example, the TEC staff will establish a resource pool of expert industry representatives for consulting and classroom instruction.
4. To coordinate the upgrading and retraining of groups of displaced workers for high-demand jobs.

The Board of Directors—composed of representatives from business, education, government, human services agencies and labor—meets regularly to define and set policy. The Board has already initiated a county-wide survey of corporate executives to measure the need for skilled workers, and to identify those companies with immediate and long-term critical shortages of trained personnel. Staff members of the center will then develop training for those companies, and arrange for these specially tailored programs by working with educators and plant supervisors. TEC will also assist county agencies in coordinating their services to ensure that programs are cost-effective. The center will also monitor the programs to ensure that company needs are being met.

Women's Technical Institute
Sharyn Bahn
Executive Director
Boylston Street
Boston, Massachusetts 02215

The Women's Technical Institute (WTI) is the country's first licensed and accredited nonprofit (industry-focused) school for women offering training in High Tech fields. The Institute actively recruits, trains and places women in high technology industries. New England is one of the country's major High Tech centers. According to the president of Analog Devices, Inc. in Westwood, Massachusetts, the center "serves as a national model for designing and implementing programs which meet employer's needs for skilled technicians and women's needs for concentrated low-cost training."

Institute training programs are short-term (six months full-time or 18 months part-time) and job-focused. They prepare women for careers as skilled technicians in electronics and drafting. Applicants must be at least 17 years of age. A high school diploma or GED is preferred but not required. Courses are now available to the public on a tuition basis, and WTI continues to contract with public agencies wishing to purchase an entire class or a block of seats for low-income adults.

WTI began in 1975 as a small, local, nonprofit organization dependent on CETA funds. Many early trainees were publicly funded. Prior to CETA's replacement by the Job Training Partnership Act, the institute began implementing a plan to broaden its funding base. A new WTI facility, paid for by money raised through a capital campaign in 1981, has been licensed by the state and earned national accreditation as a private trade school. Tuition paying students are also supplying a greater portion of the school's annual income.

WTI has trained over 350 women with public funds, foundation monies and corporate grants. Two hundred teenage students have participated in summer occupational exploration programs, and more than 12,000 under- and unemployed women have utilized the Institute's comprehensive career information resources. The Institute places 85 percent of its students.

In 1982, an Industrial Advisory Board was established with the assistance of Howard Foley, president of the Massachusetts High Technology Council (see later entry in this chapter for the Massachusetts High Technology Council) to advise the Institute on industrial trends, developments and labor needs. The Board also provides ongoing guidance for developing and updating the curriculum.

State and Regional Programs for Economic Development and Employment Training

Arizona Industry Training Service Unit
Robert V. Conter, Ph.D.
Director of Special Projects
Continuing Education
The University of Arizona
Tucson, Arizona 85719

In November 1982, the Division of Vocational Education within the Arizona Department of Education initiated the Industry Training Services Unit (ITSU). ITSU was designed to coordinate the training resources of the state and meet the existing and emerging needs of Arizona and those employers considering locating to the state. It is a training consortium composed of representatives from business, labor, education, industry and the military who attempt to meet valid predetermined employer needs.

ITSU does the following:

- ✓ Establishes a channel of communication among all agencies involved in training and employment.
- ✓ Coordinates the statewide activities of its membership.
- ✓ Develops specialized curricula and customizes short-term training programs as required or requested.
- ✓ Documents the planning and implementation of its activities.

During the first year of its operation, ITSU accomplished the following:

- ✓ Employed four regional ITSU representatives to initiate contacts, develop training programs, and act as liasons between training institutions.
- ✓ Sponsored a High Tech presentation for public and private sector agencies involved in the recruitment and development of High Tech industries in Arizona.
- ✓ Initiated the development of a "Productivity Enhancement" program to research and review existing resources and materials related to the state's productivity.

- ✓ Funded seven projects for training programs and the expansion of businesses. One hundred and forty-one individuals received training during this period. Ninety-six were placed in jobs at the end of training and others were placed thereafter.

Bay State Skills Corporation
101 Summer Street
Second Floor
Boston, Massachusetts 02110

The Bay State Skills Corporation (BSSC) is a quasi-public corporation created in July 1981 with an initial state grant of $3 million. The corporation is primarily a funding organization whose purpose is to unite industry and education in the training and retraining of the work force. BSSC programs range from entry-level skills development to advanced skills training, and from upgrading current employees to retraining experienced workers.

The corporation awards grants to those educational institutions that cooperate with private companies to train people for jobs in High Growth and High Tech fields in Massachusetts. Training institutions arrange matching funds to augment their BSSC grants. BSSC funds training programs in a variety of occupational areas including machine operations, precision machining, nuclear medicine technology, respiratory therapy, word processing, microwave engineering, electronics and robotics. Training sites include community and four-year colleges, vocational schools, government-funded skills centers, universities, and community-based organizations.

BSSC is governed by a Board of Directors and chaired by the State Secretary of Economic Affairs. The Board is composed of representatives from business and industry, skills training organizations, government, education, and labor.

The corporation's mandate includes:

- ✓ Encouraging and facilitating the development of cooperative relations between business and industry, labor, government, and education for the establishment and expansion of skills training programs consistent with real employment needs.
- ✓ Providing grants-in-aid to educational/training institutions to be matched with private sector financial support for the funding of skills programs in growth areas.
- ✓ Collecting and disseminating information on present and future employment needs, and assessing the availability of appropriate educational programs.
- ✓ Conducting conferences and research studies to increase communication and information on the state's employment needs.

In the past 18 months, BSSC has awarded over $6 million in grants-in-aid for 76 programs which trained over 5,000 persons. It worked with more than 75 education and training institutions, and 300 businesses. In addition, it added several new training areas including the Displaced Homemakers Program and programs for displaced workers.

BSSC has added a Career and Learning line to its services for Massachusetts residents with a telephone hotline referral information on specific education, training, and counseling programs throughout the state.

Its current two-year operating budget is approximately $8 million.

Broward County School System/
Industry Cooperative Planning and Programming
1320 Southwest Fourth Street
Ft. Lauderdale, Florida 33312

The Broward County System of Florida is located in an industrial area similar to "Silicon Valley" in California and "Route 128" in Massachusetts. In order to attract additional High Tech firms to the area with the promise of skilled workers, the school system has initiated a program to prepare individuals for positions in companies already in the area and those which would be relocating in the county.

Broward County educators, using labor market data, developed a five-year program to improve training in basic and advanced technological areas. The school system developed a curriculum, identified equipment needs, and designed new training facilities.

As a result of workshops and research, the school system's courses in electronics, drafting, power mechanics, industrial materials and processes, and graphics were updated. A new vocational center, which is expected to be operational within the next two years, will offer training in robotics technology, computer repair technology, instrumentation, laser optics, and hybrid micro-electronics.

There will be 10 secondary school electronics technician programs given during the 1983-1984 academic year–double the number the previous year. In addition, new programs in data processing for the microcomputer will be added to the curricula of 22 high schools and two area vocational-technical centers. Equipment is also on order for three schools to begin CAD/CAM (computer-assisted drafting and computer-assisted manufacturing) courses.

The 1982-1983 financing for the training facility's renovations and equipment purchases was acquired from a local, two-mill discretionary, *ad valorem* tax. Thirteen million dollars was earmarked for the first phase of the county's third vocational-technical center and $11 million for renovations and equipment for 22 high schools. The same level of financing is expected for the 1983-1984 school year.

Through state and county-level "Industry Services Training" programs, vocational education teachers have been exposed to operations and programming techniques of the new Computerized Numerical Control (CNC) milling machine. In another in-service teacher training program, electronics instructors participated in a six-week summer workshop at Rocal Miligro (manufacturers of electronic modems). This workshop included two weeks of classroom instruction and four weeks of hands-on work experience on the plant floor as technician "trouble shooters". Other companies offered one-day workshops to demonstrate new technological equipmant and processes used in their plants. These in-service programs enable vocational and technical education instructors to upgrade their skills.

California Worksite Education and Training Act
800 Capitol Mall
Sacramento, California 95814

The 1979 California Worksite Education and Training Act (CWETA) is a state legislative initiative to train people for skilled jobs that businesses have found difficult to fill. Since the program's beginning, training has been authorized for over 12,000 individuals in electronics, computers, nursing, machine trades, and energy conservation.

A CWETA Center for High Technology was established at Los Angeles Community College in order to utilize the resources of the state's largest community college district and provide training for electronic technician positions (in cooperation with the Communication Workers of America) with the Pacific Telephone Company. Training in computer-assisted drafting and cable television technology will also be provided within the district to employees of Fairchild Control Systems. CWETA has also established the largest program for machinists in the Los Angeles area.

CWETA programs locate jobs before training starts, and then give the trainees classroom instruction and practical, on-the-job training. More than 2,500 employers were involved in training programs as of 1982, and program graduates had a 90 percent placement rate.

Trainees include those who are unemployed, in low-skilled jobs, or in entry-level positions with little or no advancement potential. Training is provided primarily by employers and in classroom instruction at local community colleges and adult schools. Individuals usually attend classes on their own time after work.

During 1981-1982, employers agreed to contribute $2 million in cash and state-of-the-art equipment toward CWETA training. Business, workers, schools, and the State of California share the program costs.

Minnesota Wellspring
Donna J. Knight
Executive Director
101 Capital Square Building
550 Cedar
St. Paul, Minnesota 55101

Minnesota Wellspring, founded in 1981, is a voluntary, collaborative, nonprofit corporation of 27 labor, business, education, and government leaders who are concerned about expanding their state's technological leadership role and increasing job opportunities in science and technical fields. The co-chairmen of the organization come from labor and business and the incumbent Governor serves as honorary chairman.

Minnesota Wellspring sees as its particular challenge the developing of a "consensus-forming framework through which labor, business, education, and government—without losing their separate identities—can undertake initiatives to strengthen the economy and thereby benefit the whole." It atempts to bring together leaders from various segments of society whose economic and political philosophies have often been at odds. The founders saw the need and potential for developing new styles of collaborative leadership within the growing recognition of an interdependence between the economy, science, education, and information technologies.

Areas identified for action by the organization are:

- ✓ Technology and job creation—Capital formation, investment and the use of technological innovations to create new companies.
- ✓ Technology transfer—Developing linkages between technological research and innovation specifically coming out of the University of Minnesota and the marketplace.
- ✓ Technology and the workplace—To achieve a better fit between supply of workers and the need of employers for trained technical employees.
- ✓ Technology and education—Developing increased educational responsiveness to the skill and knowledge demands of the job market, and stimulating the use of technological resources to develop human resources.
- ✓ Technology and public understanding—Assisting the public in understanding the changes and challenges that advanced technology can bring to their lives.

Funding is provided by both public and private sources.

Proposed Texas Work Skills Education and Training Act
John E.S. Lawrence
Human Resources Development Psychologist
Research Triangle Institute
P.O. Box 12194
Research Triangle Park, North Carolina 27709

The Texas Work Skills Education and Training Act was a legislative proposal initiated by the Texas legislature to coordinate statewide, postsecondary and sub-baccalaureate education and training. The legislative effort evolved as a response to the problems arising from swift population shifts within the state, and changing employment requirements and employer needs, especially those of small companies. Labor market information indicated that private sector skills needs in Texas required education and training below the baccalaureate level for 80 percent of the projected (to 1995) job opportunities.

The model legislation developed by researchers at the Research Triangle Institute in North Carolina, involved searching for alternative methods of gathering labor market information about the state by either starting from scratch, using existing Census and EEO-1 data, or some combination of the aforementioned. During the drafting of the proposed legislation, the private sector cooperated by identifying their occupational priorities, the level of job competencies required and the possible locations for education and training delivery sites. The legislation was developed to be replicable in other states.

Quick Start Program
of the Georgia Department of Education
Office of Vocational Education
Robert K. Mabry
Director
Postsecondary Industrial Programs
Twin Towers East
Atlanta, Georgia 30334

Quick Start customizes training for new and expanding companies and industries within Georgia. Representatives of the Department of Education visit plant managers, analyze the job tasks for each occupation, develop training materials, and conduct training for prospective and current employees selected by plant management. Local offices of the state's Department of Labor assist in identifying potential trainees who include employed individuals seeking to either upgrade their skills or qualify for new job opportunities and advancement, and the unemployed.

The program has pre-employment and employed worker components. Pre-employment training generally lasts from six to eight weeks. Trainees and sponsoring companies are free agents in terms of job offers and placement after training. Most successful trainees, however, do receive job offers.

Programs similar to Georgia's Quick Start began in the southern states during the 1960s when the region was encouraging companies to relocate to the South as part of an effort to enhance regional economic development and growth. The concept behind the Quick Start program in Georgia, however, has since attracted national attention and inspired the creation of programs outside the South.

Additional Programs at State And Regional Levels

Numerous states and groups of states have initiated task forces to study how to: (1) attract high technology industries to their respective state or region; (2) raise the level of elementary and secondary school mathematics and science programs as well as graduation requirements in those areas; and (3) create new products, markets and jobs. Some examples follow:

I. *Center for Innovative Technology*

Dr. John Salley
Interim Director
209 Ninth Street Office Building
Richmond, Virginia 23219

The Virginia Task Force on Science and Technology has recommended the creation of a Center for Innovative Technology (CIT) to the governor. The state-sponsored research center will serve as a bridge between Virginia's leading research universities, traditional and High Tech industries, and new industry attracted to the state.

CIT will provide support to research in areas like robotics, biotechnology and computer science in conjunction with private industry. The research will be conducted by rotating teams of scientists from the state universities.

Recommendations on staff, the structure of the center and its location are expected early in 1984.

II. *Council of Great Lakes Governors*

Pamela G. Wiley
Executive Director
122 West Washington Avenue
Suite 801A
Madison, Wisconsin 53703

The governors of Illinois, Indiana, Michigan, Minnesota, Ohio and Wisconsin recently formed a consortium to lobby for more Federal money and programs in order to ease unemployment, target job training and retraining programs, and bring more economic aid and development to their region.

III. *Industrial Technology Institute*

Jerome Smith, Ph.D.
Post Office Box 1485
Ann Arbor, Michigan 48106

The Industrial Technology Institute (ITI) is an independent, nonprofit institute which focuses on the development of modern manufacturing technology for use in the factory of the future. Emphasis is expected to be placed on the development of "flexible" computerized production systems that can be adapted to produce a variety of goods, and on the creation of new companies that will make Michigan the center for modern manufacturing.

Rather than try to compete with "Silicon Valley" or Route 128 in Massachusetts (major High Tech centers), Institute planners want Michigan to excel in the areas of its demonstrated strengths, namely, manufacturing and automation.

ITI will eventually generate its own funding from industry contracts and research. In the meantime, Michigan has allocated $17.5 million for the first decade of ITI's operation and progress has been made toward raising $100 million from several Michigan foundations.

IV. *Microelectronics And Computer Technology Corporation*

9430 Research Boulevard
Building One
Suite 200
Austin, Texas 78759

This corporation is a consortium of 12 U.S. firms that will collectively spend up to $150 million per year on advanced computer research and development. The first corporate consortium of its kind, MCC is the idea of William Norris, Chairman of Control Data Corporation. MCC will concentrate on four research areas:

1. Advanced computer architecture design of new hardware
2. Software technology
3. Computer-aided design and manufacturing for electronics
4. Component packaging

V. *The Molecular Biology Institute*

Patrick Oriel, Ph.D
Interim Director
Michigan State University
East Lansing, Michigan 48823

The Molecular Biology Institute is a nonprofit independent organization funded by public and private organizations to pursue High Tech research. Researchers will specialize in agricultural and forestry technology. Presently research is concentrated on finding a method of transforming wood into chemicals to manufacture plastics.

VI. *Northeast-Midwest Congressional Coalition*

The United States Congress
Washington, D.C. 20515

Almost 200 members of Congress from 18 midwestern and northeastern states participate in the Northeast-Midwest Congressional Coalition, a bipartisan organization established in 1976. The coalition's objectives are to keep its membership informed of the regional implications of national proposals which may affect the future of member states and to encourage regional cooperation. In 1977, the coalition created an independent, nonprofit research center (the Northeast-Midwest Institute) to provide policymakers with research and analysis on pressing regional economic issues. The Institute is funded through grants from state governments, private foundations and donations.

Programs For Minorities, Women, Youth And Older Workers

Career Opportunities Project
The Atlanta Urban League, Inc
75 Piedmont Avenue, N.E.
Suite 310
Atlanta, Georgia 30303

The Career Opportunities Project (COP) specifically targets minority women who are single-parent heads of households. A comprehensive series of programs provide participants with employment opportunities through encouragement and assistance in gaining education, training, and skills development important for obtaining jobs in the private sector.

COP prefers female applicants who are unemployed or under-employed single parents, but the project is not limited to any socioeconomic background.

COP has four components:

- √ Continuing/Basic Education Module—Remediation and tutoring services for participants needing employability skills development and assistance in obtaining the GED.
- √ Career Training Module—Training in traditional and non-traditional career areas through short- or long-term on-the-job programs.
- √ Direct Placement Module—Job readiness activities and assistance in job searches.
- √ Child-Care and Supportive Services—Referrals to public and private day-care centers. Participants are also assisted in developing their own child-care support networks. Other support services include: world-of-work seminars; vocational, group and individual counseling; and referrals to community services.

Downriver Community Conference
Economic Readjustment Activity-ERa
Freda Rutherford
Employment Programs Director
Southgate, Michigan 48195

The Downriver Community Conference is a public, nonprofit consortium of 15 communities in the Detroit area. Founded in 1979, it is an example of multi-community/government cooperation in the area of economic development.

The ERa program is involved in retraining displaced industrial workers and developing job search skills. It provides on-the-job and classroom training, and a hotline service for family and financial problems. It also maintains a job resource center with a placement service network. Six similiar programs have been initiated in Buffalo (New York), the Lehigh Valley in Pennsylvania, Milwaukee (Wisconsin), Yakima (Washington), the Willamette Valley in Oregon, and Alameda (California).

The Downriver ERa program includes the following:

- √ Building job search skills.
- √ Training and retraining, including classroom instruction at colleges and other educational institutions. A two-year associate degree sequence in electronics, condensed into an intensive ten-month course, is an example of the type of program offered. The Downriver Community Conference staff arranges on-the-job training or basic education programs for participants with poor basic skills.
- √ Generating employment by assisting small businesses that operate below capacity to expand into new markets and seek out new contracts.

The consortium also established a displaced worker program in 1980 with a CETA Retraining Grant.

The Greater New York Council/
Boy Scouts of America
Career Training Program
345 Hudson Street
New York, New York 10014

During its five years of operation, the Career Training Program has assisted economically disadvantaged youth and high school dropouts in receiving training and placement for entry-level clerical positions within the expanding financial service industry in New York City. The program is open to men and women 17 to 21 years old.

High school graduates choose between a 12-week in-house program for training as financial services clerks, and a 20-week data entry/word processing operations program at a participating business school.

High school dropouts may enroll in a 25-week-long receptionist/typist program at an accredited business school where they can also qualify for high school equivalency diplomas upon completion of 24 credit hours in the program. Course work includes typing, machine transactions, data processing, business communications, recordkeeping, business math, filing and office practices.

All career program students enroll in personal development seminars and world-of-work sessions for exposure to the realities of the business environment. The courses include interviewing techniques, completing job applications, budgeting, and interpersonal relations.

To qualify for any of these programs, students must meet certain income criteria and be able to perform academically at the eighth grade level and above. Admission requirements for business schools may be slightly higher.

The Career Training Program maintained a low attrition rate through the end of 1982. More than 71 percent of the graduates placed in jobs are still employed.

Jobs for America's Graduates, Inc.
Karla S. Milanette
Director
Technical Assistance
Suite 304
1750 Pennsylvania Avenue, N.W.
Washington, D.C. 20006

Jobs for America's Graduates, Inc. (JAG) is a national, nonprofit, public service corporation designed to assist in the reduction of youth unemployment, and ease the transition from high school to work by promoting a program of motivation, job readiness, placement and retention within the private sector.

The corporation started its program in Delaware during the 1979-1980 academic year. It has subsequently been implemented in parts of Tennessee, Massachusetts, Arizona, Missouri, Michigan, Ohio and Virginia. JAG seeks to identify potentially unemployable youth who are in their senior year. Once in the program, participants are assigned a staff counselor who assists them in the development of basic "employability skills" necessary for entry-level jobs. The program also identifies job opportunities for participants, and assists in their placement in unsubsidized jobs with follow-up support lasting nine months after graduation.

Although the program is primarily concerned with those whose lack of skills may prevent them from finding jobs, it is open to all high school students.

Jobs For Youth, Inc.
Kenneth Page
Coordinator, Public Relations/Community Education
1831 Second Avenue
New York, New York 10028

Jobs for Youth (JFY) is a national, nonprofit, youth employment agency started 25 years ago in New York City, which now includes locations in Boston and Chicago. This year-round program has four components:

- ✓ In-school programs—For example, the Winter Program of Excellence which offers part-time, after-school work opportunities for 20 highly-motivated high school students.
- ✓ Assistance to special groups—These programs address the unique needs of economically disadvantaged youth seeking employment. For example, the Asian Students Summer Work Experience Program offers initial exposure to the American world of work with assistance from counselors fluent in English, Chinese and Vietnamese. Students are also enrolled in English as a Second Language courses at work sites. Another example is the Women's Project, which responds to the special employment needs of minority women, many of whom are single parents.
- ✓ Assistance for youth with special skills needs—For example, Project Upgrade for JFY graduates who are entry-level employees and ready to move into positions of greater responsibility through promotion or on-the-job training.
- ✓ Services to the field—The New York and Boston JFYs have a collaborative effort to offer technical assistance in youth program development to other organizations and agencies.

JFY targets its efforts toward the economically disadvantaged and minority youths aged 16 to 21 who are school dropouts or "hard-to-employ". The agency places them in entry-level, unsubsidized private sector jobs ranging from stock clerks, messengers, and maintenance workers, to entry- level positions in clerical and other areas.

In the past five years, JFY programs in New York, Boston, and Chicago have made over 7,000 placements in unsubsidized private sector jobs.

JFY also targets medium and small-sized firms which it believes offer new employees more personal attention and better assistance in acquainting them with the many components of business and work than the larger companies. Along with the National Child Labor Commitee of New York City, JFY devises training programs for employers so that they can work effectively with young employees.

JFY offers unique *Summer Work Scholarship Programs*. Corporations, foundations and individuals contribute $893 for a scholarship to enable a student (who receives

$703.50 as salary for the summer with the balance used for administrative costs) to gain work experience. Participants receive individualized scholarships from specific donors who are given background information on their recipient and a photograph. After the work experience ends, the scholarship donor gets a description and evaluation of the youth's work experience. Participants are all enrolled in school and must be planning to return at the conclusion of the summer experience.

In 1982, 253 scholarships were made available by 74 donors. Ninety-four community organizations provided worksite experiences which included: program assistant in the education department of a major New York City museum, law clerk at a community legal office, assistant community organizer at a community development committee, journalist, and business analyst.

In 1981, JFY implemented an industry research project funded by the Morgan Guaranty Trust Company of New York. The project was initiated to assist JFY in targeting new areas for training development. The 11-month project looked at a range of industries in the New York City area which showed growth potential and increased numbers of entry-level jobs. Eleven industries were identified for an in-depth study. They were: banking, building services, contract food, entertainment (movie theater), health, hospitality, legal (work in law firms), retail drugs (drugstores), retail sales (department stores), security, and wholesale grocery. The project provided valuable information on the following JFY areas of interest:

Job Development

- ✓ Existing entry level jobs
- ✓ Seasonality
- ✓ Salary range
- ✓ Names and contacts from trade organizations and journals
- ✓ Documentation of union-related issues and contact with unions
- ✓ Options for JFY marketing of proposed training programs
- ✓ Hiring sources
- ✓ Employment fluctuation rates within the industry

Educational Services

- ✓ Math, reading, writing, and language skills needed to pass preliminary tests, complete applications, and perform responsibilities satisfactorily.
- ✓ Skills needed for advancement and promotion in the job area.

Counseling

- ✓ Requirements for effective screening of applicants.
- ✓ Identifying vertical and horizontal growth possibilities for each industry from a counseling standpoint.
- ✓ Ways to prepare clients for an initial interview.
- ✓ Benefits and limitations within each position.

The Midwest Women's Center
Pam Anderson
Executive Director
53 West Jackson Boulevard
Chicago, Illinois 60604

The Midwest Women's Center was founded in 1976 to further the economic, political and cultural status of women in Illinois and other midwestern states. The Center provides employment services annually to more than 4,000 women, and assists its clients in finding employment in nontraditional and technical occupations.

The Midwest Women's Center maintains a close referral relationship with corporate personnel and training departments in the areas that it serves. It provides, through its job development program, over 200 "job orders" each month for use by employment counselors in screening and referring clients. It also offers counseling, job readiness workshops for women preparing for trade careers, and information forums on blue-collar careers for women. Center training programs include hands-on experience in carpentry and the machine trades.

The Center, in cooperation with the Chicago Urban League, started its "pre-apprenticeship" program in 1979 to recruit, train and place women in apprenticeship programs, as well as in nontraditional and technical fields. This program received initial major funding from the State of Illinois. Subsequent major funding to promote and expand apprenticeship programs has come from foundations.

Between 1982 and 1983, a new program was developed to place women in the highway construction trades. Women in this program are being placed in full-time, unsubsidized jobs as truck drivers, carpenters, electricians and laborers. There were 35 to 40 women in an active client pool waiting to be placed in highway construction-related occupations in the summer of 1983.

The Midwest Women's Center, with support from a U.S. Department of Labor Women's Bureau grant, is offering a training program to over 500 women's organizations, unions, employers, and government agencies in a six-state region. It is to assist them in designing and implementing apprenticeship training programs that will further the entry of women into trade occupations in those states.

Opportunities Industrialization Centers
Of America, Inc.
Elton Jolly, Ph.D.
National Executive Director
P.O. Box 4212
Philadelphia, Pennsylvania 19144

Opportunities Industrialization Centers of America, Inc. (OIC) is a network of national vocational training affiliates founded in 1964 by the Rev. Leon H. Sullivan in Philadelphia. The organization offers a comprehensive range of services to identify and prepare individuals, especially those having difficulty in finding meaningful employment.

OIC of America, Inc. offers nonoccupational or life-coping skills and occupational skills training through a program of 11 interrelated service modules:

- ✓ Outreach/recruiting.
- ✓ Intake—The enrollment of program applicants and the determination and verification of their eligibility for specific programs.
- ✓ Orientation/Assessment—Familiarizing program trainees with the self-help philosophy of the OIC program and assessing their level of educational and occupational aptitude.
- ✓ Feeder—Providing prevocational training including basic skills education, ethnic history and culture, personal grooming, and work behavior.
- ✓ Counseling—Counseling in career opportunities, and personal problems.
- ✓ Supportive Services—Practical assistance to meet trainee housing, transportation, day-care, health, and/or legal assistance needs.
- ✓ Special Services—Assisting individuals such as ex-offenders, the mentally or physically handicapped, non-English speakers, and women and youth with unique training and employment needs.
- ✓ Vocational Skills Training—Training in more than 100 "demand" occupations including computer operations/applications, word processing, data entry, electronics, secretary (legal), construction, nursing, retail sales, lathe operating, pharmaceuticals, and vehicle maintenance.
- ✓ Job Development—Collecting current labor market information and marketing OIC's product—a well-trained and motivated job applicant.
- ✓ Job Placement—Matching program participants with job openings.
- ✓ Follow-up assessment—Tracking successful program trainees who have been placed in jobs, and gathering corporate information on how OIC can upgrade its training programs.

The IBM Corporation has funded the establishment of five High-Tech training centers for OIC in St. Louis, Boston, Minneapolis, New York City and Philadelphia. All of these centers are utilizing state-of-the-art equipment. Trainees are introduced to word processing, data entry, computer operations and computer programming. Control Data Corporation and the Sperry Corporation have provided the equipment and corporate-paid instructors for High-Tech programs offered through the OIC affiliate network.

OIC of America, Inc. has a National Industry Advisory Council (NIAC) composed of private sector executives who regularly consult with and advise the leadership of OIC on training. There is also a National Technical Advisory Committee composed of corporate staff managers who implement NIAC decisions and policies.

Project Discovery
The Women's Bureau
The Department of Labor
200 Constitution Avenue NW
Washington, D.C. 20210

Project Discovery is a new demonstration project of the U.S. Department of Labor Women's Bureau to be offered in conjunction with Links Inc., a national black women's service organization.

Project Discovery, which will be based in Baltimore, Maryland, will work to improve the job-finding skills of middle-income minority women between the ages of 35 and 50, who are seeking to enter or re-enter the work force or trying to move into jobs in growth occupations. It will also assist these women in addressing the changes in their lives that have economic consequences, such as widowhood and divorce.

Workshops will focus on self-awareness, career exploration, job skills transfer and exposure to the job market. The program will provide follow-up sessions in which participants will share their employment experiences.

The project will be a prototype for similar efforts across the country, and will serve a segment of the population often overlooked by other programs.

SER-Jobs For Progress, Inc.
1335 River Bend Drive
Dallas, Texas 75247

SER-Jobs for Progress, Inc. is a national community-based corporation dedicated to equal opportunity for all Americans. It is particularly concerned with increasing the business and economic opportunities for minorities.

SER—an acronym meaning *to be* in Spanish—stands for service, employment and redevelopment. The SER organization was established in 1964 by the American G.I. Forum and the League of United Latin American Citizens (LULAC) as a volunteer employment and training program. Since that time, its 81 local affiliates have maintained high levels of client placement in unsubsidized private sector jobs.

Each local affiliate is structured to meet the specific needs of its particular community and to provide appropriate skills training. Employment-related services range from outreach, recruitment, assessment, certification, job counseling, on-the-job and skills training, to basic remedial education and English as a Second Language.

SER has a national business advisory council, the Amigos de SER, which currently has 88 corporate members who assist in the development of training programs. For example, the Amigos de SER in Miami and Houston and the IBM Corporation have jointly established computer skills training centers for economically disadvantaged persons. The Amigos de SER, which was initiated in 1974, also has an *Executive-on-loan* program to provide executives who will act as resident consultants and liasons between SER and the private sector at SER National Headquarters for one year periods.

One example of a SER intervention program is the Multicultural Career Intern Program in Washington, D.C., which is mentioned later in this chapter.

Florida A & M
School of Business and Industry
Dr. Sybil C. Mobley, Dean
Florida A & M University
Tallahassee, Florida 32307

The Florida A & M School of Business and Industry (SBI) provides a unique program that has received notice from corporations and businesses throughout Florida and the country. Florida A & M is an historically black public university with a business school enrollment that is 95 percent black. In addition to providing students with technical information relating to business administration, the curriculum includes professional development in business discipline and initiatives, communication, social and personal skills, and leadership training important to the development of successful business careers. The academic curriculum is augmented by a comprehensive program on business culture. The professional development program includes writing book reviews, debates on the important issues relating to business, developing speaking skills, and holding forums where top American business executives speak with students and answer questions about business and their companies.

SBI successes have been the result of the dialogue and cooperation between the university, the Florida State Legislature and corporate America. All let the SBI Dean know the additional nonacademic qualities deemed important for a successful match between the school's graduates and positions in American companies. Some graduates have received as many as 15 job offers during their senior year.

Howard University Summer Actuarial Institute
Maurice Williams, Ph.D.
Director
Howard Center for Insurance Education
Howard University
Washington, D.C. 20059

Howard University's School of Business and Public Administration offers a major in insurance with a concentration in actuarial science; the College of Liberal Arts offers a major in mathematics with an actuarial science concentration. The actuarial program at the university is small, with only 12 students enrolled, mostly in the School of Business. Howard University, in order to recruit more freshman students to the field, conducted a Summer Actuarial Institute in 1983 which was attended by 50 high school juniors with outstanding aptitudes in mathematics. Students were selected on the basis of their SAT or PSAT test scores, high school transcripts, and recommendations from their high school mathematics teachers.

The Institute is a three-week program which provides these students, mostly members of minority groups, with an opportunity to take college-level mathematics and computer courses. It also serves as a recruitment tool for the University's Center for Insurance Education. The curriculum includes lectures on binomial distribution, measures of dispersion, means and extremes, descriptive and inferential statistics, and computer programming. Students also participate in a business decision-making computer game.

The program is funded by insurance companies and by the Society of Actuaries; both groups are interested in encouraging students to consider actuarial careers.

The Institute is expected to be repeated in 1984, in the hope that at least 10 outstanding freshmen students will become enrolled in one of the degree-granting actuarial programs each year it is offered.

INROADS

Reginald D. Dickson
Executive Vice President and Chief Operating Officer
Post Office Box 8766
St. Louis, Missouri 63102

INROADS is a career development program which combines work experience with college study to offer minority students a comprehensive package of tutoring, counseling, and summer internships with major corporations over a period of four years. The program recognizes the need of even the most talented minority students to come in contact with business-oriented role models in order to be encouraged to consider a career in business.

The original program sponsored students from inner-city high schools in Chicago. Its support has expanded since 1970 to 10 additional cities: Cleveland; Milwaukee; Minneapolis/St. Paul; St. Louis; Kansas City, Missouri; Dallas; Houston; Pittsburgh; Charlotte, North Carolina. It is hoped that programs will soon be initiated in Denver, Newark, and Richmond, Virginia. INROADS has 598 corporate sponsors in its pre-college and college programs, and many of it graduates are now employed in the country's major corporations.

The pre-college program offers courses and workshops that are academically oriented, including the development of good study and time management skills, familiarity with exam-taking, and mechanisms for coping with testing. Participants attend pre-college classes 30 Saturdays during the school year, and every day for 6 weeks during the summer.

Prospective interns for the college level programs must graduate in the top ten percent of their high school class. INROADS views itself as a *product development* program, therefore, candidates must meet stiff requirements in order to assure a high level of work performance for program sponsors. They must also attend a four-year college or university within an area served by the program, major in business or one of the applied sciences, and meet regularly with their staff counselor. Following two successful interviews, prospective interns are placed in a talent pool of 200-300 students for corporations to select from in any given year. Students are eligible for appointments with corporations after receiving counseling on job interviewing, dress, and communications skills.

College level interns are matched with a staff counselor who monitors their progress by making sure that grade point averages are up to standard, and summer internships are of increasing challenge in subsequent years of the program. Seminars in areas such as decision-making and negotiation skills are offered beginning in the sophomore year.

The INROADS program has a service component and interns are expected to work on projects beneficial to their home communities. This is viewed as a way to develop corporate and community leaders within minority communities. The National INROADS Alumni Association, established in 1982, is an active group which promotes the professional development of its members and establishes communication networks among minority business officials. Graduates also serve as role models for the pre-college and college program participants. The Chicago alumni association, with 100 members, tutors junior high students in English and mathematics, conducts company tours for interns, publishes a newsletter, and helps recruit new interns. Alumni also participate in Regional Training Institutes which bring 200 to 300 interns together on a college or university campus for three days of training and comraderie.

One of INROADS' self-identified concerns is that an increasing number of participants are being selected with suburban, middle-class backgrounds because they are better prepared to survive the rigors of the program. Another concern is that student skills and interests cannot always be matched with corporate employer needs and, therefore, students may not be offered jobs by cooperating companies at the end of the four year process.

INROADS is a nonprofit, tax-exempt organization funded by contributions from its corporate sponsors, and receives no Federal or state monies. The program does not pay participants' tuition, however, interns do qualify for scholarships and grants, receive wages from their sponsoring corporations, and an occasional educational loan to cover their expenses.

LEAD (Leadership, Education And Development)
Program in Business, Inc.
William J. Elliott
Executive Director
37 Nishuane Road
Montclair, New Jersey 07042

LEAD is a joint corporate/business school program founded in 1980 to encourage minority high school students to pursue business careers. Students are recruited for and apply to the program through A Better Chance, Inc., a national nonprofit organization which recruits academically-gifted minority students for educational opportunities and experiences. The nonprofit, tax-exempt program operates for four weeks in July.

LEAD combines lectures and case-study analyses with field trips to corporate offices and plants, and classroom instruction. The program provides minority students, chosen because of their leadership abilities and potential, with a comprehensive introduction to the free-enterprise system.

LEAD addresses the issue of low minority representation in both business school programs and corporate management. It targets high school students because they are still considering career options.

Forty corporations and foundations contribute funds, business case-study materials, speakers, and programming at participating companies. In 1982, the Wharton School of Business (University of Pennsylvania); the University of Michigan Graduate School of Business; the J.L. Kellogg Graduate School of Management at Northwestern University; and Columbia University School of Business provided room and board, classroom facilities and faculty support to the program. In 1983, the University of Maryland, in cooperation with Howard University and the University of Virginia, became sponsors through a cooperative effort. By 1985, LEAD hopes to have ten campuses involved in the program.

The League of National Educational Service Centers, Inc.
of The League of United Latin American Citizens
Jose Longoria
Executive Director
400 First Street
Suite 716
Washington, D.C. 20001

The League of National Educational Service Centers, Inc. (LNESC) was established in 1973 as the educational affiliate of LULAC, an organization involved since 1929 in uniting with other civic groups to eliminate discriminatory practices against economically disadvantaged Americans. The National Educational Service Centers provide Hispanic youth with access to higher education. LNESC estimates that it has supported, motivated and assisted approximately 10 percent of the 1.1 million Hispanic students enrolled in college during its 10 years of existence. Its programs serve approximately 20,000 students annually.

The 12 centers offer students counseling in future-oriented academic programs. By designing precollegiate programs to provide early technical education and training, LNESC hopes that Hispanic representation in technical fields will increase. The centers also focus on leadership development and basic academic preparation. The Philadelphia and Colorado Springs programs include the BEST Project (Business, Engineering, and Science Technology), a precollege intervention program providing personal, educational and career counseling; hands-on training experiences; instructional programs; and tutoring services. The BEST Project conducts weekly instruction in mathematics, general science, and communication skills. Field trips and workshops provide an opportunity to learn about different technical careers and professions from interactions with practicing professionals and visits to corporate offices, plant facilities, and science museums.

The first BEST Project was located in Philadelphia and the first graduating class (1981) had a 100 percent program retention rate: 85 percent of the participants entered institutions of higher education to study business, engineering, and science-based health fields. BEST Philadelphia started with a foundation leadership grant and the program is currently supported by grants from the private sector. In 1984, a new BEST program will be opened at the New Haven, Connecticut LNESC.

LNESC also has professional preparation and development programs and conducts Project Follow-Up seminars that bring college students together with corporate leaders to discuss potential career paths and opportunities. The Follow-Up seminars are supported by corporate participants.

In 1982, the Kellogg/LNESC intern program was started. It is a professional training program providing four recent college graduates with an opportunity to strengthen their leadership and managerial skills. The internship lasts one year and concentrates on administration, finance, program development and operations, research, and resource development functions. Interns are based at LNESC headquarters in Washington, D.C.

Mathematics, Engineering, Science Achievement
Executive Director
Lawrence Hall of Science
University of California
Berkeley, California 94720

Mathematics, Engineering, Science Achievement (MESA) is a state-wide enrichment program in California. It is designed to increase the number of minority students completing high school with necessary preparation in mathematics, science and English to pursue a math-based discipline at the college level.

MESA provides academic course work to strengthen the high school student's capabilities in science and mathematics, offers incentives that recognize academic performance, and builds cooperative networks among public schools, universities, industry, and professional societies that provide services and support to students in the program. MESA creates a sense of community among its students, their parents, teachers, volunteers and others.

MESA provides six major services to supplement and enrich students' regular educational programs:

- ✓ Tutoring from advanced MESA program peers and volunteers from cooperating institutions.
- ✓ Independent study groups, organized and supervised by MESA directors and teachers, that encourage students to work together in creating a supportive environment for effective learning.
- ✓ Academic and career counseling that assists students in choosing a high school or collegiate program of study and provides information on career opportunities.
- ✓ Field trips to industrial plants and research centers enabling MESA students to have contact with professionals in the engineering and technical fields, and their working environments.
- ✓ Summer enrichment and employment programs.
- ✓ Scholarship Incentive Awards for students who achieve high academic standards and meet awards criteria.

MESA measures program results annually so that the program's sponsors can assess the influence of their involvement. Many companies support MESA on an annual basis because they view it as a model of industry-school cooperation that can foster further economic growth.

MESA is governed by the regents of the University of California and operates 15 centers throughout the state. Associated with universities strong in science and engineering, each center works with students from secondary schools within their geographic areas. An Industry Advisory Board and a Center Advisory Board provide advice and counsel to the state MESA office located at the University of California, Berkeley. Local advisory boards at the center are composed of teachers, parents and representatives from local companies and organizations. Each center has a faculty sponsor, a director (the day-to-day manager of the center) and advisor-teachers, who are usually high school mathematics or science staff. These individuals act as MESA liaisons at each participating high school. MESA also has a network of university level programs operating in 10 universities.

MESA was initiated in 1970 at the Oakland Tech High School. During the 1976-77 academic year, a decision was made to replicate the program throughout the state. Initial grants from foundations made program expansion possible. By 1981-1982, MESA served approximately 2,700 students. If additional funding is secured in the future, MESA believes that its program could serve 4,500 students at 150 high schools in California. In the first five years of statewide operation, financial support came from private corporations, foundations and the state through its two university systems.

Multicultural Career Intern Program
Maria Tukeva
Program Director
c/o Abraham Lincoln Junior High School
Sixteenth and Irving Streets, N.W.
Washington, D.C. 20009

The Multicultural Career Intern Program (MCIP) or the *Bilingual High School,* is a pilot alternative secondary school program operated by SER-Jobs for Progress (see entry earlier in this chapter), a national Hispanic self-help organization under contract from the U.S. Department of Labor through the auspices of the District of Columbia Public School System. It is an holistic educational program primarily for students who are first generation immigrants.

An initial CETA grant was awarded in 1979 for the development and operation of a multi-cultural/multi-racial school to help students whose first language is not English to complete high school and get necessary career education and training. The program targets students with problems of cultural isolation and/or linguistic barriers, especially those from Asia, and Spanish-speaking countries. SER faculty is bilingual.

SER developed a curriculum, received program accreditation, established a relationship with the local public school system, and moved into classroom space in a local junior high school building with the first CETA grant. In 1980, it received another grant to begin operation and obtained an on-the-job training contract from the local PIC for 30 students.

Students are generally referred to the program. They have completed the ninth grade, are local residents between the ages of 16 and 21, and have met income eligibility requirements. Participants are not required to be non-native English speakers.

Students are given a pre-placement test and an interview prior to admission. Upon admission, each student selects two career areas to investigate through the career exploration portion of the program.

At the time of this writing, 150 students were enrolled and 32 had graduated. Of the 32 graduates, 12 went to college, three to technical school, six into the military, two to other CETA programs, and five to unsubsidized jobs. Follow-up with employers or teachers is done at the end of the first, third, sixth, and twelfth month after graduation.

The North Carolina School of Science and Mathematics
Director
West Club Boulevard
Durham, North Carolina 27705

The North Carolina School of Science and Mathematics (NCSSM) is the country's first state-wide public, residential, tuition-free high school for juniors and seniors with exceptionally high intellectual ability and commitment to scholarship in the areas of science and mathematics. It was established in 1978 by the North Carolina State General Assembly and admitted its first class of 150 juniors in 1980.

The NCSSM campus is located on the site of a former hospital/nursing school complex and enjoys a close relationship with the universities, scientific, and cultural institutions within the *Research Triangle* area of Durham, Chapel Hill and Raleigh. The school is an independent part of the state public school system but the living/learning environment of NCSSM supports and cooperates with other school units within the system through summer workshops and seminars for teachers, supervisors, and underclassmen/women. It is anticipated that a limited number of out-of-state students (up to 15 percent) will eventually be admitted on a fee basis.

NCSSM is financially supported by individuals, foundations, corporations, other private enterprises and Federal and state agencies. Room and board, as well as tuition, are provided without cost to students who, in return, perform an average of four hours of work and service each week they are in residence. The school faculty is composed of professionals with advanced degrees and extensive experience in their disciplines. All have master's degrees and 46 percent have doctorates. The core faculty is supplemented by mentors and consultants from state and national scientific communities.

The minimum requirements for graduation include four units each in English, mathematics, and science; two in social science; two or three in foreign language; one and one-half in physical activity; and three and one-half units in electives. Each student must also complete two years of work service, e.g., tutor, computer aide, housekeeper, dorm assistant; and one year of community service through volunteer work within the community. They must also demonstrate proficiency in using a computer.

The Fine Arts curriculum offers students the opportunity to develop their artistic talents. The Mentor Program for seniors allows them to spend three to five hours a week assisting professional researchers in the laboratories of Research Triangle area universities, institutes and industries.

Technical Scholar Program
Coordinator
Greenville Technical College
Greenville, South Carolina 29606

The Technical Scholar Program (TSP) was conceived in 1978 by major area employers concerned about recruiting high school graduates for technical careers in Greenville, South Carolina. The first class of Technical Scholars entered Greenville Technical College in 1980 and graduated in 1982.

Students recruited for the program are those who would be successful in college but prefer a hands-on, technical, postsecondary education.

The Technical College, and Greenville businessmen and women prepared a program proposal which sought a financial commitment from the state to purchase new High Tech equipment for the college. The college's existing equipment was appropriate for basic manufacturing and machining industries, but inadequate for training persons for the technological occupations of the 1980's. After an evaluation of existing academic programs at the college, a cooperative program which includes school in the morning and work in the afternoon was initiated.

Sponsoring companies buy students' books, pay their tuition, and provide 24 hours of paid work per week. In 1982, all graduates were hired full-time by their sponsoring company. Some of the graduate Technical Scholars continued on with four-year degree programs; most were sponsored by their respective companies.

In three years of operation, program-sponsor participation expanded from 12 to 22 companies, and five curriculum options were offered to over 100 students. Greenville Technical College now screens over 500 candidates each year for the program. Applicants are accepted on the basis of their school record. A Technical Scholar coordinator based at the College was appointed to counsel students on their academic program and to assure that their work experience is meaningful.

A Master Advisory Committee, which includes a representative from the business community, is responsible for the development of program policies that are of mutual importance to both students and sponsoring companies. The committee has assisted in the development of similar programs in two neighboring communities and is currently involved in planning a new program which will coordinate training efforts between vocational high schools, technical colleges and industry. One participating company representative said of the latest initiative, "We are trying to create a new awareness of where we can help each other. For too long we have all gone off in our own directions."

Other Programs of Interest

Career Merit Achievement Plan (CAREER MAP)
Talmadge L. Rushing, Director
Industrial Education
State of Florida
Department of Education
Tallahassee, Florida 32301

Members of the Industrial Committee of Florida's State Advisory Council on Vocational and Technical Education, and the South Florida Manufacturers Association saw a need to standardize High Tech curricula throughout the state. They implemented the Merit Achievement Plan (MAP), a format used in other industrial areas to itemize the "industry-validated" state-of-the-art competencies and skills required of entry-level High Tech employees. The Career MAP tracks student progress and achievement in specific skill areas necessary for a High Tech career: classroom instruction, laboratory training and cooperative work experiences. It is used for programs in Florida's comprehensive High Schools, vocational-technical centers and community colleges.

Among other things, the Career MAP attempts to accomplish the following:

- ✓ Counsel and advise students considering a High Tech career.
- ✓ Assist teachers and curriculum developers in planning curricula and establishing resource requirements.
- ✓ Serve as the foundation for a life-long record of training, which is updated by workers as they master new skills through additional learning and training.
- ✓ Identify the skills needed by job seekers.
- ✓ Certify instructor competency.
- ✓ Help assure that equipment and training facilities are adequate for the development of student skills.

Career MAPs have been or are being developed in computer electronics, computer servicing, robotics, automation technology, manufacturing technology, electromechanics, laser electro-optics, instrumentation, telecommunication, electronics, avionics, telephone technology, computer-assisted design (CAD), and hybrid micro-electronics.

Community College of Allegheny County
Job Task Analysis Approach to Crosstraining Displaced Skilled Workers
Dr. Daniel C. Pryzbylek
Dean
Continuing Education
800 Ridge Avenue
Pittsburgh, Pennsylvania 15212

The Job Task Analysis Approach is part of the Community College of Allegheny

County's (CCAC) response to displacement of the community's skilled millwrights due to the declining steel industry. The JTA Approach tracks supply and demand within the labor market, particularly its effects on skilled workers moving from one job classification to another. It is useful in locating qualified applicants with an interest in and the skills needed for employment in occupations that require qualified workers. CCAC then develops and offers appropriate curricula in those areas. The components of the job task analysis include:

- ✓ Labor market analysis to identify potential new jobs areas.
- ✓ Review of local labor force statistics, looking especially at who is being laid off and in what job categories.
- ✓ Review of the characteristics of displaced workers including their educational achievements; job experience; previous duties, tasks and responsibilities; and previous levels of training and education.
- ✓ Identification of job classifications currently open in the labor market.
- ✓ Cross-comparison of available jobs in order to determine the differences between old and new job requirements.
- ✓ Development of an appropriate curriculum.
- ✓ Screening and referral of the most qualified candidates to CCAC training programs.
- ✓ Additional screening of referred candidates through the administration of academic and job proficiency examinations.
- ✓ Interviewing of program candidates by the CCAC Industrial Advisory Board and its recommendation of candidates for training.
- ✓ CCAC training.
- ✓ Upon completion of training, the College Industrial Advisory Board and the Employment Service develop jobs and place successful graduates.

The CCAC has had two programs in the Pittsbrugh area to train displaced skilled workers. One program trained workers as stationary engineers for Pittsburgh construction projects. These trainees qualified in Low Tech boiler operations and in High Tech fundamentals of programmable controllers. A second program trained clients to work as robot repair technicians. Participants who were enrolled in this program were already trained maintenance workers with backgrounds in electro-mechanical repair, hydraulics and instrument repair.

The Corporation for Public/Private Ventures
1726 Cherry Street
Philadelphia, Pennsylvania 19103

The Corporation for Public/Private Ventures is a nonprofit corporation that researches and designs cooperative programs between the public and private sectors. It seeks to resolve problems of an economic nature, such as job training and creation, education for employment, and economic and community development.

Public/Private Ventures operates with public and private contracts and grants, and designs, manages and assesses new collaborative initiatives. It also evaluates programs already in existence, conducts research and analysis of labor forces and economic issues, provides educational and technical assistance to business, industry, community organizations and both state and local governments, and disseminates information about successful collaborative efforts.

In 1983, due to anticipated cutbacks in Federal government funding for program development and research activities, Public/Private Ventures changed its financial support from Federal grants and contracts to private foundations and corporations.

The Corporation for Public/Private Ventures
Ventures in Community Improvements
1726 Cherry Street
Philadelphia, Pennsylvania 19103

Ventures in Community Improvements (VICI) is an 18 month demonstration training program in construction trades offered by the Corporation of Public/Private Ventures in 1982 to economically disadvantaged, out-of-school youth between 16 and 19 years of age.

Trainees in the demonstration program worked on actual construction sites in eight cities, under the supervision of union journeymen. Trainees rehabilitated housing and public facilities in their own communities. In addition to working full-weeks at the construction sites, trainees were also trained in such complementary construction skills as construction-related math, blueprint reading and cost estimation. Training and counseling were met primarily by journeymen crew chiefs and took place in "crews" of six or seven persons.

Each community improvement project was responsible for meeting contracted production commitments with their respective work-providing organizations such as community development agencies and housing authorities. Demonstration funding came from a combination of national and local public and private monies. When the demonstration project ended, five of the eight demonstration site cities decided to continue the program with local funding.

Marie Reed Employment Support Network
Pamela Friedman
c/o Adams Morgan Community Development Corporation
1748 Columbia Road, N.W.
Washington, D.C. 20009

The Marie Reed Employment Support Network is composed of businessmen and women (who first suggested the establishment of such a support system), the local PIC, the local community development center, human resources and human services personnel from government and community/neighborhood-based organizations, and the public school system. These organizations and individuals seek greater interaction among themselves by developing programs that assist people in training for and getting jobs. The Network was established to facilitate dialogue and to be a flexible framework able to focus attention on the training/education needs of specific groups, (e.g., Hispanics, and neighborhoods that might be overlooked within larger, more rigid frameworks).

The Network meets weekly and has also held a public forum for representatives of the larger D.C. community who are involved in employment programs. Discussion encompasses the implications of the new Job Training Partnership Act, the current status of local training programs, the availability of skilled workers, current and anticipated jobs for successful program trainees, and skills needs of local employers.

Massachusetts High Technology Council
Howard P. Foley
President
60 State Street
Boston, Massachusetts 02109

The Massachusetts High Technology Council is an association of 125 High Tech companies operating in Massachusetts, and associate members that are service organizations working directly for member companies. Founded in 1979, the Council is the primary voice of the High Tech industry in Massachusetts. Its purpose is to nurture the industry's profitable growth by "actively facilitating cooperative relationships within the industry itself, among member companies, the financial community, and educational and governmental institutions within the Commonwealth." Areas of Council concern include education and training for the High Tech careers.

The Council, in conjunction with the American Electronics Association, is sponsoring an initiative called the "two percent solution". The effort allocates two percent of the member companies' research and development (1982) budgets to assist universities and some secondary schools in expanding technical education programs, especially in engineering and computer science. The Council perceives development in these areas as a key to the expansion of human resources and the future viability of member companies.

The Council thus far has conducted three human resource surveys; held two manpower planning conferences; instituted teacher-training programs; and published guides for (1) colleges, outlining the skills required by the industry, and (2) corporations, advising on options for corporate support of technical education development. In addition to conducting High Tech career awareness programs for secondary school students, the Council also offers a program to nine out-of-state engineering universities for the purpose of introducing students to High Tech careers.

Some of the programs sponsored by member companies include the establishment of "Career Development Faculty Chairs" to attract young faculty to teach courses of mutual interest to the High Tech industry and participating universities, technical assistance programs with master's degrees in technical writing for students with master's degrees in English, and course development for MBA programs in High Tech. Companies also donate equipment, provide summer employment programs for undergraduate and graduate students, and loan key personnel as instructors.

National Youth Employment Coalition
(formerly National Youth Advocacy Coalition)
Kenneth Nochimson
Executive Director
1501 Broadway
Suite 1111
New York, New York 10036

The National Youth Employment Coalition (NYEC), founded in 1977 and incorporated in 1979, is concerned with employment training for young people. The Coalition meets regularly to discuss, evaluate and propose employment training policy and legislation, to exchange information about members' programs, and to minimize the duplication of efforts in youth employment areas.

NYEC is comprised of voting members who represent nonprofit, community-based organizations, and nonvoting associates who include corporate and foundation representatives.

Membership fees are on a sliding-scale basis. Financial support comes from membership dues and subscriptions, government contracts, and philanthropic grants.

Opportunities Academy of Management Training, Inc.
Dr. Robert C. Hutchins
Executive Director
1415 North Broad Street
Philadelphia, Pennsylvania 19122

Opportunities Academy of Management Training, Inc. is a diversified, nontraditional, nonprofit, continuing education program. It is sponsored by the Opportunities of Industrialization Centers of America, Inc., a national, community-based organization that provides assistance and support through local affiliates to the disadvantaged in the areas of career counseling and employment training (see OIC description earlier in this chapter).

Founded in 1974, the Academy provides leadership and management training to OIC affiliates, staff, managers, executives, staff members of the business and industry communities, government agencies and their subcontractors, educational institutions, service organizations and interested individuals. Its focus is to provide those who work in the area of human and social services with human resource development and management skills that will enable them to be successful when working with the economically disadvantaged.

The Academy also provides job development training programs for displaced public service employees and assists them in finding permanent employment within the private sector.